

CASE

NUMBER:

99-449

Cinergy Corp.
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Cincinnati, OH 45201-0960
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JOHN J. FINNIGAN, JR.
Senior Counsel

February 4, 2000

VIA OVERNIGHT MAIL

Elizabeth E. Blackford
Assistant Attorney General
1024 Capital Center Drive
Frankfort, Ky 40601

CINERGY

RECEIVED
FEB 04 2000
PUBLIC SERVICE
COMMISSION

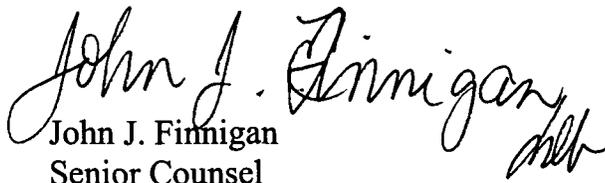
RE: In the Matter of: A REVIEW PURSUANT TO 807 KAR 5:05
THE 1999 INTEGRATED RESOURCE PLAN OF THE UNION LIGHT,
HEAT AND POWER COMPANY
Case No. 99-449

Dear Ms. Blackford:

Enclosed is a copy of The Union Light, Heat and Power Company's Responses to the Attorney General's Initial Requests for Information in the above captioned case.

A copy of these responses has been forwarded to all parties of record in this case.

Very truly yours,

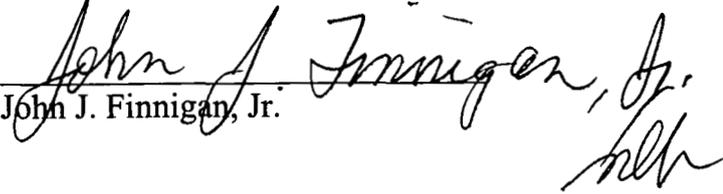

John J. Finnigan
Senior Counsel

JJF/nlb

Enclosures

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing Responses was served on the following parties by ordinary mail, this 4th day of February, 2000.


John J. Finnigan, Jr.

Iris Skidmore
Ronald P. Mills
Office of Legal Services
Fifth Floor, Capital Plaza Tower
Frankfort, Kentucky 40601

Hon. Helton Helton
Public Service Commission of Kentucky
211 Sower Boulevard
Frankfort, Kentucky 40602

RECEIVED
FEB 04 2000
PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

A REVIEW PURSUANT TO 807 KAR 5:058 OF THE)
1999 INTEGRATED RESOURCE PLAN OF THE) CASE NO. 99-449
UNION LIGHT, HEAT AND POWER COMPANY)

RESPONSE OF
THE UNION LIGHT, HEAT AND POWER COMPANY
THE ATTORNEY GENERAL'S
INITIAL REQUESTS FOR INFORMATION

FIRST SET

FEBRUARY 4, 2000

AttGen-01-001

REQUEST:

1. On page 8-26 of the IRP, Carbon Dioxide emissions and their effect on Global Climate Change is discussed. For each of the last 11 years, 1989-1999, please supply the following:

- a) Total carbon dioxide emissions associated with supplying ULH&P's energy demand.
- b) Total carbon dioxide emissions associated with supplying the internal energy demand for the total Cinergy system.
- c) Total carbon dioxide emissions from Cinergy generators (including emission associated with off-systems sales but excluding emissions associated with energy purchased to supply internal energy demand).

RESPONSE:

The emissions information requested is only available as a total for Cinergy generators. Cinergy does not break this information down into emissions associated with supplying ULH&P's energy demand and emissions associated with supplying the internal demand for the Cinergy system.

Total carbon dioxide emissions from the Cinergy generators was estimated as follows:

Year	CO2 Emissions (tons)
1995	58,123,876
1996	55,573,364
1997	57,342,697
1998	64,829,023
1999	72,749,846

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-002

REQUEST:

2. On page 8-26 of the IRP, Carbon Dioxide emissions and their effect on Global Climate change is discussed. For each of the years in the IRP planning period, through 2019, and based on the base plan in the IRP, please supply the following:

- a) Total carbon dioxide emissions associated with supplying ULH&P's energy demand.
- b) Total carbon dioxide emissions associated with supplying the internal energy demand for the total Cinergy system.
- c) Total carbon dioxide emissions from Cinergy generators (including emission associated with off-systems sales but excluding emissions associated with energy purchased to supply internal energy demand).

RESPONSE:

In preparing the IRP, Cinergy did not model CO₂ emissions in PROVIEW™. ULH&P therefore does not have this information.

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-003

REQUEST:

3. On page 5-23 of the IRP, reference is made to Cinergy companies' participation in the OhioValley Electric Corporation (OVEC). With respect to that participation, please supply the following:

- a) Percent of participation and associated number of Megawatts for each of the Cinergy companies.
- b) Number of Kilowatt-hours sold to OVEC by Cinergy for each of the last 5 years.
- c) Number of Kilowatt-hours bought by OVEC from Cinergy for each of the last 5 years.
- d) On December 12, 1999, the Courier Journal (Uranium Operator Could Shut Down One of Its Two Plants", page B4) quotes the United States Enrichment Corporation's President, William Timbers, as saying that his company is "analyzing whether to shut down one of its two production plants", and that upgrades were being made to the Paducah plant to match the capabilities of the Piketon plant. Has Cinergy included in the IRP the very real possibility that the Piketon plant may be shut down in the near future and that Cinergy's OVEC capacity may become available for Cinergy's use?

RESPONSE:

3 a) Cinergy is entitled to 9% of the OVEC capacity not utilized by the DOE. OVEC generating capacity totals 2150 MW, and the DOE is limited to a maximum usage of 1900 MW of this. Thus, the minimum excess that Cinergy is entitled to is 9% of 250 MW. However, the DOE's typical usage varies from 1000 to 1500 MW, thus Cinergy is

typically entitled to 9% of anywhere between 600 to 1100 MW, or a Cinergy share of 54 MW to 99 MW.

3 b) and c)

1999 Cinergy sold 1,627 MWhrs to OVEC
1999 Cinergy purchased 206,130 MWhrs from OVEC

1998 Cinergy sold 2,516 MWhrs to OVEC
1998 Cinergy purchased 251,301 MWhrs from OVEC

1997 Cinergy sold 1,438 MWhrs to OVEC
1997 Cinergy purchased 97,940 MWhrs from OVEC

1996 Cinergy sold 6,384 MWhrs to OVEC
1996 Cinergy purchased 155,215 MWhrs from OVEC

1995 Cinergy sold 37,489 MWhrs to OVEC
1995 Cinergy purchased 307,896 MWhrs from OVEC

3 d) Yes, Cinergy would consider utilizing additional excess capacity from OVEC that results from the DOE shutting down Piketon plant.

WITNESS RESPONSIBLE:

John Swez

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-004

REQUEST:

4. In Sections 5 and 6 of the IRP, coal, oil, natural gas and syngas use is discussed. For each of the past 11 years, 1989-1999, please supply:

- a) Total tons of coal burned to supply the internal energy demand for the total Cinergy system.
- b) Total tons of coal burned by Cinergy to supply both the internal energy demand for the Cinergy system and to make off-system sales.
- c) Total gallons of oil burned to supply the internal energy demand for the total Cinergy system.
- d) Total gallons of oil burned by Cinergy to supply both the internal energy demand for the Cinergy system and to make off-system sales.
- e) Total MCF of natural gas burned to supply the internal energy demand for the total Cinergy system.
- f) Total MCF of natural gas burned by Cinergy to supply both the internal energy demand for the total Cinergy system and to make off-system sales.
- g) Total MCF of syngas burned to supply the internal energy demand for the total Cinergy system.
- h) Total MCF of syngas burned by Cinergy to supply both the internal energy demand for the total Cinergy system and to make off-system sales.

RESPONSE:

See attached.

WITNESS RESPONSIBLE:

Art Buescher

Cinergy Operated Steam

	1995				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Miami Fort	4,371,052	1,806,343	948,680	-	-
East Bend	3,910,928	1,647,818	641,466	-	-
Zimmer	2,924,653	1,197,444	226,128	-	-
Edwardsport	4,387,289	1,889,441	834,078	-	-
Noblesville	1,176,037	110,405	415,178	-	-
Walabash River	1,175,535	66,737	60,304	-	-
Callagher	2,235,434	1,093,026	1,453,182	-	-
Cayuga	5,928,872	2,803,794	1,602,578	-	-
Gibson	16,926,634	7,551,239	3,988,242	-	-
			1,974,292	-	-

	1996				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Miami Fort	5,449,330	2,199,410	1,114,634	-	-
East Bend	4,691,085	1,950,377	795,489	-	-
Zimmer	2,722,487	1,120,815	348,317	-	-
Edwardsport	4,940,018	1,887,807	778,920	-	-
Noblesville	296,818	154,178	226,747	-	-
Walabash River	180,104	110,416	108,562	-	-
Callagher	3,153,756	1,551,090	1,981,766	-	-
Cayuga	2,680,488	1,156,821	2,031,219	-	-
Gibson	4,996,456	2,376,663	436,182	-	-
	14,896,236	6,778,037	1,823,178	-	-

	1997				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Miami Fort	5,128,531	2,119,989	1,256,286	-	-
East Bend	4,820,482	2,052,362	1,579,824	-	-
Zimmer	3,042,166	1,247,874	437,540	-	-
Edwardsport	3,940,315	1,499,501	1,285,912	-	-
Noblesville	404,280	241,439	438,502	-	-
Walabash River	244,386	143,599	90,483	-	-
Callagher	2,661,215	1,425,148	1,366,437	-	-
Cayuga	2,340,782	870,265	1,980,544	-	-
Gibson	6,510,424	3,040,953	330,315	-	-
	15,914,099	7,440,370	1,324,140	-	-

Cinergy Non-Operated Steam

	1995				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Stuart	5,732,963	2,337,351	405,216	-	-
Killen	1,132,942	457,876	511,224	-	-
Cornesville	1,226,870	514,595	122,220	-	-

	1996				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Stuart	5,622,326	2,338,452	332,718	-	-
Killen	1,353,846	555,719	580,046	-	-
Cornesville	1,057,696	449,625	124,610	-	-

	1997				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Stuart	5,646,682	2,379,680	515,662	-	-
Killen	1,328,552	547,404	294,243	-	-
Cornesville	1,393,516	590,394	94,042	-	-

Cinergy Operated Hydro

	1995				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Markland	363,156	-	-	-	-

	1996				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Markland	337,945	-	-	-	-

	1997				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Markland	424,084	-	-	-	-

Cinergy Operated Peaking

	1995				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Dicks Creek GT	9,997	-	188,118	-	200,333
Miami Fort GT	2,391	-	712,824	-	-
Beckford GT	23,127	-	2,455,950	-	-
Woodsdale GT	257,867	-	913,071	-	3,467,508
Walabash River Repowering	49,563	6,007	19,743	-	-
Walabash River IC	291	-	18,743	-	-
Miami Walabash IC	1,708	-	484,463	-	-
Cornesville IC	5,249	-	580,910	-	-
Cayuga IC	979	-	78,362	-	-
Cayuga 4 CT	47,716	-	7,826	-	558,170

	1996				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Dicks Creek GT	(560)	-	26,301	-	24,238
Miami Fort GT	(175)	-	209,642	-	-
Beckford GT	7,545	-	1,038,942	-	-
Woodsdale GT	100,680	-	-	-	3,624,551
Walabash River Repowering	211,308	191,569	3,947,724	-	777,039
Walabash River IC	117	-	8,266	-	-
Miami Walabash IC	(325)	-	69,078	-	-
Cornesville IC	242	-	67,738	-	-
Cayuga IC	384	-	30,359	-	-
Cayuga 4 CT	31,333	-	50,030	-	348,121

	1997				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Dicks Creek GT	1,660	-	57,234	-	44,060
Miami Fort GT	1,542	-	302,162	-	-
Beckford GT	13,549	-	1,792,430	-	-
Woodsdale GT	111,720	-	-	-	1,808,858
Walabash River Repowering	802,088	408,745	4,147,456	-	1,781,180
Walabash River IC	84	-	5,880	-	316,744
Miami Walabash IC	342	-	218,899	-	-
Cornesville IC	1,545	-	204,320	-	-
Cayuga IC	632	-	46,339	-	-
Cayuga 4 CT	27,107	-	76,850	-	328,353

Cinergy Non-Operated Steam

	1995				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Killen	5,374,776	2,267,095	679,174	-	-
Cornesville	1,515,029	637,115	350,270	-	-
	1,154,956	499,093	71,454	-	-

	1996				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Killen	5,373,434	2,291,582	2,267,941	-	-
Cornesville	1,337,945	557,189	353,427	-	-
	1,405,651	590,789	66,034	-	-

	1997				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Killen	5,989,879	2,508,150	2,250,255	-	-
Cornesville	5,710,882	2,454,471	1,020,004	-	-
	3,041,401	1,286,875	241,955	-	-
	3,994,368	1,583,110	1,182,106	-	-
	470,926	281,217	2,397,185	-	-
	328,103	200,957	100,314	-	-
	3,394,709	1,659,562	883,108	-	-
	2,995,827	1,257,492	2,300,338	-	-
	5,807,525	2,758,374	523,311	-	-
	18,094,246	8,902,941	1,942,511	-	-

Cinergy Operated Hydro

	1995				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Markland	349,729	-	-	-	-

	1996				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Markland	333,944	-	-	-	-

	1997				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Markland	36,337	-	12,110	-	739,952
	10,130	-	1,076,185	-	-
	42,516	-	6,822,919	-	-
	300,308	-	-	-	3,112,766
	754,601	348,035	3,975,371	-	4,750,680
	1,078	-	62,450	-	315,366
	9,124	-	1,407,738	-	-
	20,203	-	2,035,415	-	-
	2,185	-	178,504	-	-
	73,195	-	85,432	-	873,666

Cinergy Operated Peaking

	1995				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Dicks Creek GT	18,682	-	2,789	-	410,095
Miami Fort GT	1,084	-	113,625	-	-
Beckford GT	33,240	-	4,812,448	-	-
Woodsdale GT	228,897	-	-	-	630,433
Walabash River Repowering	1,203,631	566,081	4,178,994	-	3,898,220
Walabash River IC	569	-	56,177	-	-
Miami Walabash IC	1,721	-	424,509	-	-
Cornesville IC	8,903	-	923,139	-	-
Cayuga IC	1,445	-	122,832	-	-
Cayuga 4 CT	56,998	-	15,298	-	682,886

	1996				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Dicks Creek GT	24,952,304	-	21,926,324	-	630,433
Miami Fort GT	56,919,362	-	-	-	5,350,516

	1997				
	MMW	Coal Tons	Oil Gall	Propane Gal	Gas MCF
Dicks Creek GT	26,680,755	-	31,204,623	-	3,112,766
Miami Fort GT	59,388,317	-	-	-	6,689,665

Cinergy Totals By Year

	1995	1996	1997
MMW	56,919,362	59,388,317	54,849,773
Coal Tons	24,952,304	26,680,755	24,107,723
Oil Gall	21,926,324	31,204,623	17,855,320
Propane Gal	630,433	3,112,766	1,808,858
Gas MCF	5,350,516	6,689,665	2,470,316

	1995	1996	1997
MMW	56,919,362	59,388,317	54,849,773
Coal Tons	24,952,304	26,680,755	24,107,723
Oil Gall	21,926,324	31,204,623	17,855,320
Propane Gal	630,433	3,112,766	1,808,858
Gas MCF	5,350,516	6,689,665	2,470,316

	1995	1996	1997
MMW	56,919,362	59,388,317	54,849,773
Coal Tons	24,952,304	26,680,755	24,107,723
Oil Gall	21,926,324	31,204,623	17,855,320
Propane Gal	630,433	3,112,766	1,808,858
Gas MCF	5,350,516	6,689,665	2,470,316

NOTE: The fuel information provided is only available as a total for Cinergy generators. Cinergy does not break this information down into fuel used to supply the internal demand for the Cinergy system.

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-005

REQUEST:

5. In Sections 5 and 6 of the IRP, coal, oil, natural gas and syngas use is discussed. For each year of the IRP planning period, through 2019, and based on the plans in the IRP, please supply:

- a) Total tons of coal burned to supply the internal energy demand for the total Cinergy system.
- b) Total tons of coal burned by Cinergy to supply both the internal energy demand for the Cinergy system and to make off-system sales.
- c) Total gallons of oil burned to supply the internal energy demand for the total Cinergy system.
- d) Total gallons of oil burned by Cinergy to supply both the internal energy demand for the Cinergy system and to make off-system sales.
- e) Total MCF of natural gas burned to supply the internal energy demand for the total Cinergy system.
- f) Total MCF of natural gas burned by Cinergy to supply both the internal energy demand for the total Cinergy system and to make off-system sales.
- g) Total MCF of syngas burned to supply the internal energy demand for the total Cinergy system.
- h) Total MCF of syngas burned by Cinergy to supply both the internal energy demand for the total Cinergy system and to make off-system sales.

RESPONSE:

The fuel information requested is only available as a total for Cinergy generators. Cinergy does not break this information down into fuel burned to supply the internal demand for the Cinergy system. The figures for gallons of oil burned do not include oil

used to start up units because start-up oil was not modeled. In addition, the modeling for the Wabash River 1 was done using coal, so data is not available for MCF of syngas burned. The coal tons for Wabash River 1 are included in the total for coal.

	<u>COAL</u> <u>(000)</u> <u>TONS</u>	<u>OIL</u> <u>(000)</u> <u>GALLONS</u>	<u>GAS</u> <u>(000)</u> <u>KCF</u>
1999	25,036	8,808	3,779
2000	24,127	8,734	4,641
2001	24,374	13,366	6,455
2002	25,176	10,917	6,261
2003	26,688	8,347	7,816
2004	29,404	1,885	24,126
2005	29,766	1,754	29,277
2006	30,005	1,709	29,810
2007	28,332	4,731	33,962
2008	29,106	5,284	37,688
2009	28,854	5,073	44,233
2010	28,491	4,658	48,420
2011	28,056	3,430	43,552
2012	27,915	4,010	49,594
2013	27,977	3,594	55,093
2014	27,203	3,704	64,215
2015	27,434	2,661	61,660
2016	26,806	3,413	66,165
2017	26,550	3,527	73,213
2018	27,232	2,880	68,974
2019	27,381	3,056	64,236

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-006

REQUEST:

6. On page 6-6 of the IRP, Nitric Oxide emissions are discussed. For each of the last 11 years, 1989-1999, please supply the following:

- a) Total NOx emissions associated with supplying ULH&P's energy demand.
- b) Total NOx emissions associated with supplying the internal energy demand for the total Cinergy system.
- c) Total NOx emissions from Cinergy generators (including emission associated with off-systems sales but excluding emissions associated with energy purchased to supply internal energy demand).

RESPONSE:

The emissions information requested is only available as a total for Cinergy generators. Cinergy does not break this information down into emissions associated with supplying ULH&P's energy demand and emissions associated with supplying the internal demand for the Cinergy system.

Cinergy Total Annual NOx Emissions

1995 = 153,130 T
1996 = 156,560 T
1997 = 165,640 T
1998 = 156,500 T
1999 = 163,040 T

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-007

REQUEST:

7. On page 6-6 of the IRP, Nitric Oxide emissions are discussed. For each of the years in the IRP planning period, through 2019, and based on the base plan in the IRP, please supply the following:

- a) Total NO_x emissions associated with supplying ULH&P's energy demand.
- b) Total NO_x emissions associated with supplying the internal energy demand for the total Cinergy system.
- c) Total NO_x emissions from Cinergy generators (thus including off-systems sales but excluding emissions associated with energy purchased to supply internal energy demand).

RESPONSE:

The emissions information requested is only available as a total for Cinergy generators. Cinergy does not break this information down into emissions associated with supplying ULH&P's energy demand and emissions associated with supplying the internal demand for the Cinergy system.

The NO_x emissions from Cinergy generators for 2003-2019 are as follows:

<u>Year</u>	<u>NO_x Tons</u>
2003	32,475
2004	40,322
2005	40,997
2006	42,114
2007	38,707
2008	40,995
2009	40,747
2010	40,424
2011	38,125
2012	39,948
2013	39,757
2014	39,381
2015	38,383
2016	39,271
2017	39,560
2018	40,501
2019	40,231

The NO_x emissions for 1999-2002 have not been provided because detailed NO_x modeling was not done for these years. Please note that the emissions provided are annual tons, not just the tons associated with the May-September ozone season.

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-008

REQUEST:

8. The chart on page 1-39 of the IRP shows that 2354 MW of new capacity will be added in the year 2004. While it is understood that this is just a "placeholder", if this capacity is actually added as 11 new 214 MW combustion turbines:

- a) When will permitting have to begin to get these units on line in 2004.
- b) Manufacturers are having a difficult time keeping up with demand for Combustion Turbines. Given the tight market for combustion turbines, can any manufacturer supply Cinergy with 11 combustion turbine units in the same year?
- c) Cinergy has delayed adding new capacity until the need is over 2300 MW. Please explain in detail why it is safe from a reliability standpoint to rely on purchasing up to 2200 MW at one time when there is limited capacity available on the market as a result of the general scramble to meet growing demand by all utilities which are running short of capacity.

RESPONSE:

- a) Permitting work will have to begin by Summer 2000.
- b) Cinergy can obtain 11 CTs by October 2003 if multiple manufacturers are used.
- c) As stated on page 8-9 of the IRP, the CTs can be viewed as "placeholders" for further purchases. This means that not all of the 2354 MW shown will actually be new CT capacity. A portion may be purchases. In addition, as pages 8-43 through 8-49 discuss, there are a number of uncertainties facing Cinergy in the next few years that will greatly affect the actual amount of capacity needed in the future. One of the biggest uncertainties stems from the implementation of customer choice in Ohio starting 1/1/2001. If a large portion of Cinergy's Ohio load switches to alternate suppliers, Cinergy's need to purchase power or build additional capacity in the near future could be greatly reduced or even eliminated. If Cinergy were to build all of the capacity shown and a large portion of the load switched, the new CT capacity potentially could be stranded investment. Therefore, Cinergy is continuing to evaluate its load/capacity situation.

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-009

REQUEST:

9. Cinergy is going to be moving into a competitive environment in Ohio starting in 2001.

With respect to this new environment:

- a) Under the Ohio legislation, will Cinergy be divesting its generating assets? If so, how will ULH&P customers be served in a fully regulated state if their supplier invests their generating assets?
- b) In a competitive environment, some suppliers offer a "green power" package to customers wanting pollution-free power. Cinergy's only renewable power comes from the Markland hydro station. Is Cinergy intending to try to compete for "green power" sales? If the answer is yes, please explain where Cinergy would get the "green power" to sell.

RESPONSE:

- a. CG&E has requested permission, in its Transition Plan filing, to transfer its generating assets to an affiliated but separate corporate entity. This corporate entity will be an EWG which will own and/or operate the electric generating facilities whose power will be sold at wholesale. CG&E would enter into a purchase power agreement to receive power from the EWG. ULH&P customers will be served in their fully regulated state in the same manner as today under ULH&P's retail tariffs. ULH&P will obtain power through a FERC tariff and a service agreement between CG&E and ULH&P, which currently was through the end of 2001
- b. Markland is not Cinergy's only renewable power source. As discussed in the response to AttGen-01-010, Cinergy has contracts with a landfill gas non-utility generator and a coal bed methane non-utility generator. Cinergy is still studying whether it wants to compete in the green power market. At this time, no decisions have been made.

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-010

REQUEST:

10. On page 5-22 of the IRP, it is stated that there is a 4 MW non-utility generator in the PSI territory. With respect to this facility, please provide the following information:

- a) What is the fuel source or sources (example: solar or wood fired, etc.)?
- b) Where is this facility located?
- c) The IRP states that only 4MW is operational. Are there plans to enlarge this facility?
- d) Are sales made under PURPA or a different type of contract?

RESPONSE:

- a) As stated on page 5-22 of the IRP, there are 2 contracts which make up the 4 MW of non-utility capacity. One is fueled by landfill methane (about 3 MW) and the other was fueled by coal bed methane (about 1 MW).
- b) The landfill methane facility is located in Danville, Indiana, and the coal bed methane facility was located in Terre Haute, Indiana.
- c) The company operating the landfill methane facility has considered adding additional generators, but the economics have not been favorable. The company operating the coal bed methane facility has additional capacity installed, but only about 1MW was operational at any one time. They had planned to install additional capacity, but have gone out of business since the IRP was prepared.
- d) The landfill methane facility is not located in PSI's service territory, so PSI was not obligated to purchase the output under a PURPA contract. However, since the other utility did not want to purchase the output, PSI signed a contract with the facility under PSI's Standard Contract Rider No. 50. PSI also signed a contract with the coal bed methane facility under Standard Contract Rider No. 50.

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-011

REQUEST:

11. On page 5-24 of the IRP, a diversity agreement with East Kentucky Power Cooperative that went through March 31, 1999 is mentioned. With respect to that arrangement:

- a) Has a new agreement with EKPC been signed after the one mentioned expired? If there is a new agreement, please provide its details including when it will expire, the size, and any associated financial arrangements.
- b) How has this agreement been included into the IRP planning, and for how many future years?

RESPONSE:

- a) A new agreement has not been signed.
- b) Not applicable.

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-012

REQUEST:

12. On pages 5-38 and 5-39 of the IRP, renewables are discussed. Please explain why the most widely used renewable, conventional hydro, was not considered, given Cinergy's knowledge that there conventional hydro is available, as is evidenced by its listing of two possible hydro purchases on page 8-7? Is Cinergy aware that there are a number of dams on the Ohio River that still can be developed like Cinergy developed Markland?

RESPONSE:

Page 5-45 of the IRP states that hydro resources tend to be site-specific, so Cinergy normally evaluates both pumped storage capacity and run-of-river resources on a project-specific basis. The reader was then directed to Chapter 5 Section G, which discusses the RFP process, including approximately 100 MW of hydro that was bid. Cinergy is aware that there are a number of dams on the Ohio River that still can be developed, especially since the hydro facilities bid in the RFP are located on the Ohio River. As stated on page 5-61 of the IRP, Cinergy is still in contract negotiations with the bidder. That is why the hydro resources were modeled in PROVIEW™ as resource alternatives for incorporation into the resource plans.

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-013

REQUEST:

13. On page 5-41 of the IRP, Cinergy states that the use of Pump Storage Hydro is limited by the availability of suitable geologic formations. Is Cinergy aware that the Summit Pump Storage Hydro facility is licensed in the State of Ohio and is simply looking for a utility that needs the project? Has Cinergy considered this facility? If so, please state why it is not included as an IRP option?

RESPONSE:

Cinergy's 1994 IRP contained an economic evaluation of participating in the Summit project in comparison to building a simple cycle CT such as a unit at Woodsdale (see Attachment AttGen-01-013-A). The CT economics were far superior to those of Summit over the peaking duty capacity factor range of 0-15%, mainly due to the large disparity in capital costs between the two options (Summit's pro-forma estimated debt service level equated to a capital cost of \$1242/kW). Therefore, because of Summit's high cost, Cinergy has not included it as an IRP option.

WITNESS RESPONSIBLE:

Diane Jenner

2. EVALUATION OF THE SUMMIT PUMPED HYDROELECTRIC STORAGE PROJECT
PRIOR TO FURTHER CONSTRUCTION AT THE WOODSDALE STATION.

CG&E has conducted an evaluation of the 1,500 MW Summit Pumped Hydroelectric Storage Project, which was requested by the Public Utilities Commission of Ohio in Case Nos. 91-635-EL-FOR and 92-312-EL-FOR. This evaluation, based on the data furnished by Summit in their March, 1994, Proposal to Electric Utilities, consisted of an initial screening analysis of the Summit project compared against the Woodsdale gas-fired combustion turbine resource. The screening examined 30-year levelized \$/kW-year overall costs over varying capacity factors.

Summit proposes a two-tiered leasing structure for participating utilities over an initial 30-year term. The first leasing component, called the "Basic Rent Component," is designed to recover the approximate capital cost of the facility, currently estimated as between 1.7 - 1.8 billion dollars. Each participant pays a "Basic Rent" component that is proportional to their capacity share interest in Summit. The second lease component, called the "Fuel Price Component," is based on a cost differential index for natural gas prices. The Fuel Price Component of the lease is designed to insure that the Summit IPP development partnership can sell excess energy from the Summit unit at a lower cost than any of the other Participating Utilities. The Summit project would also require separate operations agreements with Ohio Edison for dispatch services and transmission access.

The evaluation centered on evaluating an equivalent capacity

block of 100 MW for Summit and Woodsdale CT resources over an equivalent life of 30 years. The four Summit leasing options contained in the Summit proposal were examined. The Option 2 lease structure was chosen for use in the screening analysis because of its lowest evaluated cost (See Figure 6-1). In Option 2, the Participant Utility bears all interest rate risk during the construction period in exchange for a lower lease payment. The screening evaluation data is listed in more detail in the tables that follow.

The screening analysis comparison of the Summit project and Woodsdale CT peaking resources produced the following conclusions:

1. Over the range of peak generation capacity factors (0-15%), the Woodsdale CT unit is clearly the least cost choice, due primarily to the large disparity in capital costs between the two resources. For example, Summit's pro-forma estimated debt service level of \$1,863,565,000 equates to a capital cost of \$1,242/kW, versus an estimated \$414/kW for the Woodsdale CT resource. Even if Summit's most optimistic projections for "dynamic operating benefits" were to hold (\$500/kW), the residual \$742/kW capital cost for Summit still remains prohibitive for use as a peaking resource.
2. Fuel price differentials between coal (Summit) and gas (Woodsdale) are not a significant factor in the screening evaluation, primarily due to the prohibitive Summit capital cost and the low capacity factors of peaking resources.

THE CINCINNATI GAS & ELECTRIC COMPANY

The Company discounts the economic worth of the "dynamic operating benefits" of the Summit project as represented in the Summit proposal. For example, the Company would not receive any black-start capability benefits from Summit because in a black-start condition, the system would be transmission isolated from other interconnecting systems, including Summit. Further, the new energy management system will allow Woodsdale combustion turbines to regulate output as a result of load changes automatically. Also, both the black-start and the quick-start capability of the proposed Woodsdale Plant should be sufficient for the Company's needs well into the future. A review of other utility experience with dynamic operating benefits of pumped storage indicates significant variation in perceived economic worth, which is believed to be due to system specific economic and operating conditions. Most utility studies report much lower operating benefits than Summit's estimated \$300 - 500/kW.

In a competitive utility environment, the Company could be harmed by investing in Summit. As currently proposed, the fuel price leasing component adder for all Participating Utilities insures that the Summit IPP development group would have the low cost competitive advantage in wheeling peak energy from the Summit project, at the competitive expense of the other participants.

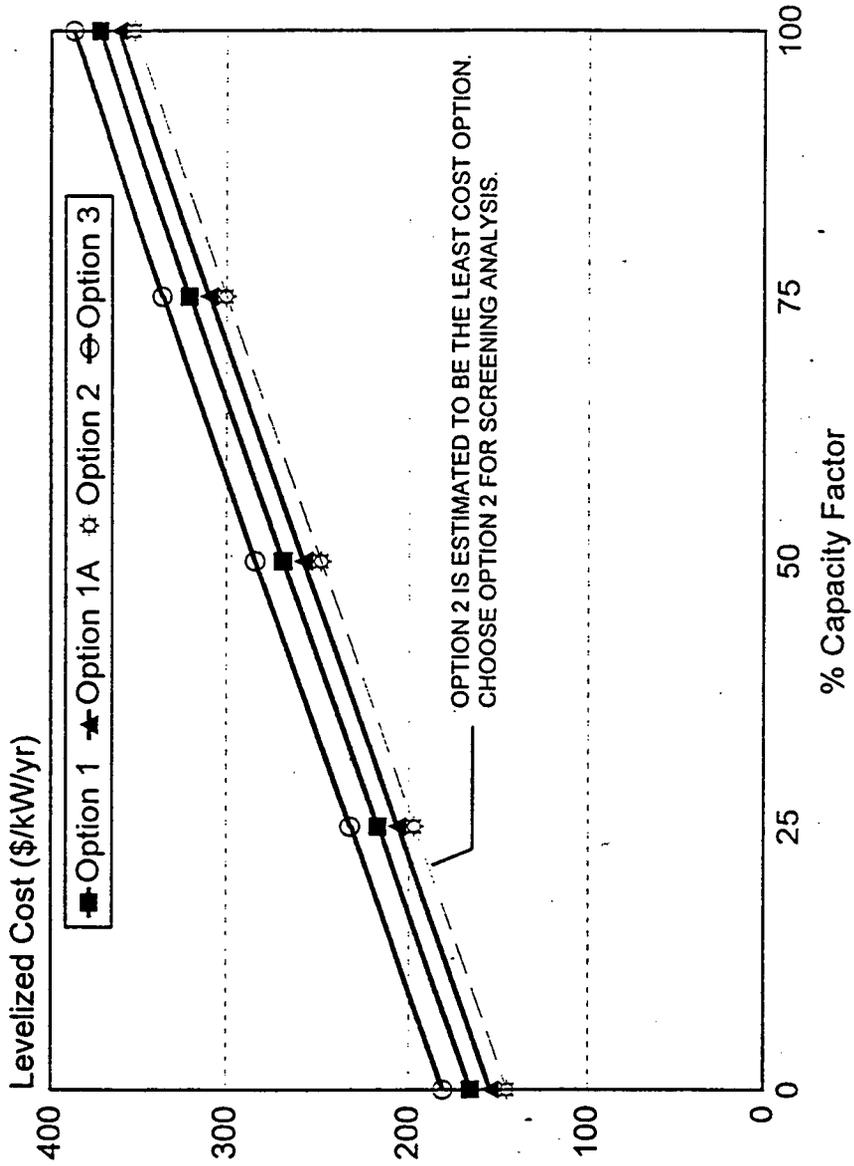
The Company's analysis reaffirms its decision not to participate in the Summit project based on the economic results of the screening evaluation. The capital cost and recovery structures

THE CINCINNATI GAS & ELECTRIC COMPANY

of Summit prohibit it from being examined further as a peaking resource addition. These reasons, combined with Summit's lack of competitive advantage for the Company in a retail wheeling environment, are compelling reasons not to participate in the Summit Pumped Hydroelectric Storage Project as it is currently proposed.

Summit Pumped Storage - Screening Analysis

Levelized Cost Comparison - Leasing Options



This chart shows the various leasing options presented in the Summit proposal for comparison.

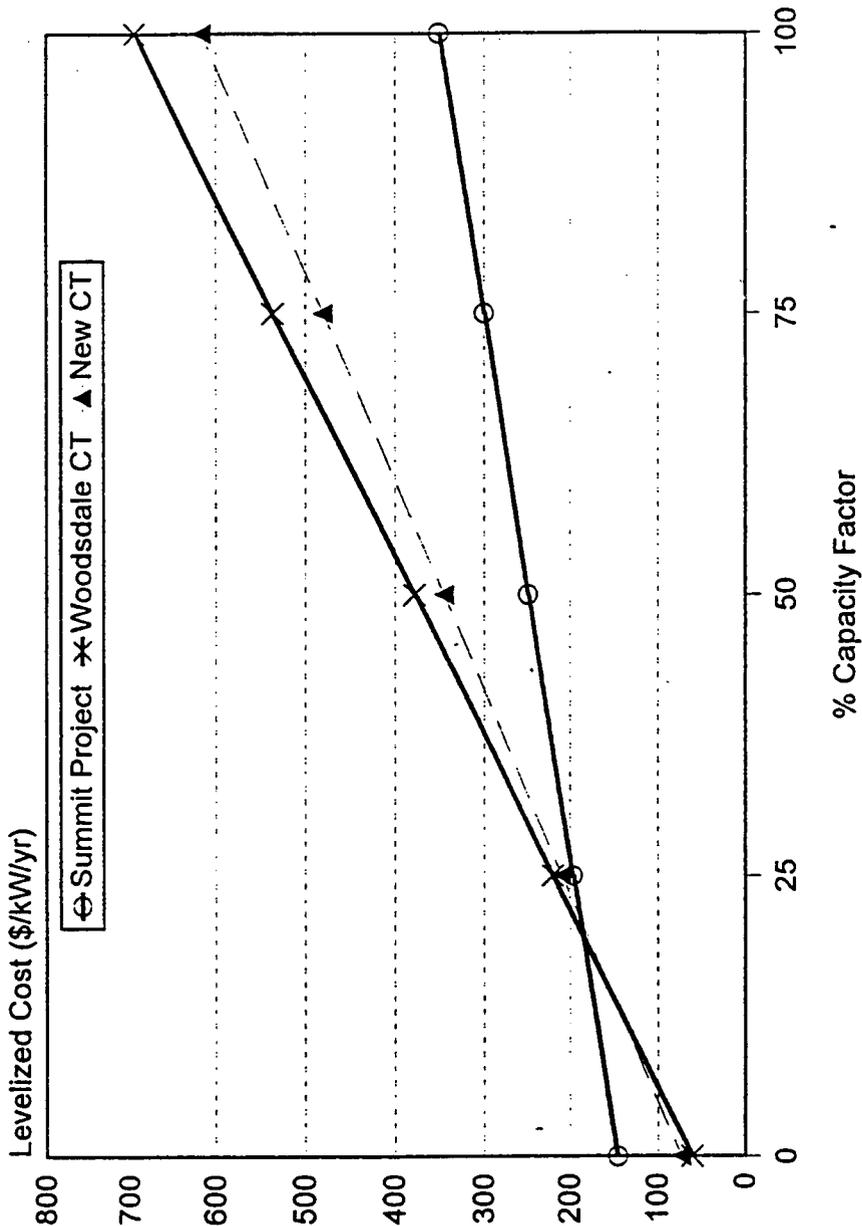
These curves are for screening purposes only.

OPTION 2 IS ESTIMATED TO BE THE LEAST COST OPTION. CHOOSE OPTION 2 FOR SCREENING ANALYSIS.

Figure 6-1
100 MW Summit Option

Summit Pumped Storage - Screening Analysis

Lease Option 2 - Lowest Cost Screen Bound



NOTES:

1. Data for Summit taken directly from Summit proposal. Summit economic data is levelized to year 2000 dollars, then present valued to year 1994 dollars using an inflation rate of 3.5%.
2. No power wheeling charges or transmission line losses are included. "Dynamic operating benefits" are not included.

Figure 6-2 100 MW Summit Option

THE CINCINNATI GAS & ELECTRIC COMPANY

SUMMIT PUMPED HYDROELECTRIC STORAGE PROJECT ANALYSIS

TABLE 6 -1: SUMMIT PROJECT

ITEM ID	ITEM	AMOUNT	UNITS
\$FIXOM	Fixed O+M	4.3400	\$/kW/Yr
\$VAROM	Variable O+M	1.9710	\$/MWH
\$INSUR	Insurance	0.8590	\$/kW/Yr
\$PROPTAX	Property Taxes	2.0000	\$/kW/Yr
\$PROPALT	Property Tax Alternate	8.5870	\$/kW/Yr

ITEM ID	ITEM	AMOUNT	UNITS
\$FIXESC	Fixed O+M	0.035	%/YR
\$VARESC	Variable O+M	0.035	%/YR
\$INSESC	Insurance	0	%/YR
\$PROPESC	Property Taxes	0	%/YR
\$POWERESC	External Power Cost	0.035	%/YR

CAPACITY OPTION INPUTS		UNITS
Summit Pumped Storage Capacity	100	MW
Estimated Capacity Factor	0-100	%
Summit Turnaround Efficiency	0.77	%
ENERGY OPTION INPUTS		
Summit Energy Output	VARIES	MWH
Off-peak Generating Cost	17	\$/MWH
POWER WHEELING INPUTS		
Other Wheeling Costs	2.64	\$/kW/mo
Host Wheeling Costs	2.14	\$/kW/mo
Other Transmission Losses	0.03	%
Host Transmission Losses	0.03	%

SUMMIT PUMPED HYDROELECTRIC STORAGE PROJECT ANALYSIS

TABLE 6 - 2: SUMMIT LEVELIZED COSTS VS. CAPACITY FACTOR

% Capacity Factor	Levelized Cost (\$/kW-yr)
0%	145.36
25%	196.91
50%	248.45
75%	300.00
100%	351.55

These results are used to develop the screening curves between the Summit project and the Woodsdale combustion turbine resources.

Table 6-3
 SCREEN CURVE DATA - SUMMIT ANALYSIS: CT ALTERNATIVES

	Plant A	Plant B	Plant C	Plant D	Plant E	Plant F
Effective Cost of Capital:	8.74%					
1994 Dollars	Woodsdale	New CT	NA	NA	NA	NA
GRAPHICLEGEND:						
Size (MWe)	100.0	100.0				
Capital Cost (\$/kWe)	414.00	434.00				
Annual Fixed Charge Rate	13.48%	13.48%				
Life Expectancy (yrs)	30	30				
Heat Rate (Btu/kWh)	12546	11700				
Var. O&M (\$/MWh)	4.3	0.1				
Fixed O&M (\$/kW-yr)	3.73	10.7				
Fuel Cost (\$/MMBtu)	3.27	3.27				
Fuel Escalation Rate	4.80%	4.80%				
O&M Escalation Rate	3.50%	3.50%				
Equip. Forced Outage Rate	3.3%	3.5%				

NOTE: The values shown are relative values used for planning purposes. Absolute values may vary considerably depending on many factors, including but not limited to: unit MW size, seasonal deratings, specific site requirements, equipment vendor(s), ultimate number of units planned on a specific site, and future and/or unforeseen regulatory requirements.

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-014

REQUEST:

14. On page 543 of the IRP, Cinergy states that there are no mature Wind technologies that could be used at this time. If this technology is not available today, please explain how Cinergy is installing this technology now in Spain (as shown on page B- 15 of the Cinergy 1998 Annual Report which was included in the IRP).

RESPONSE:

What Cinergy meant by the statement on page 5-43 was that there are no mature Wind technologies at this time that can be sited in Cinergy's service territory in Indiana, Ohio, and Kentucky due to the low level of wind speeds in this area.

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-015

REQUEST:

15. On page 8-7 of the IRP, resource options considered by Cinergy are shown. On page 8-58, the 1999 Cinergy selected plan is shown. Comparing the resource options and selected plan:

- a) Was the 25 MW of Interruptible DSM selected and included in the DSM Bundle or the purchases, or was this option not selected or rejected?
- b) Were either of the two Hydro Purchases included in the selected plan as part of the purchased power, or were these options not selected or rejected?

RESPONSE:

- a) As stated on pages 8-8 and 8-9 of the IRP, the 25 MW Interruptible DSM alternative was modeled as a 29 MW (25 MW + Reserve Margin) dispatchable unit, so it was not included in the DSM Bundle or the purchases. The option was not selected in the final plan, nor was it selected in any of the significantly different plans that were analyzed.
- b) The two Hydro Purchases were not included in the selected plan as part of purchased power nor were they selected in any of the significantly different plans that were analyzed.

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-016

REQUEST:

16. On page 848 of the IRP, it is stated that "the potential still exists under PURPA for Cinergy to be forced to purchase power from cogenerators, whether the power is actually required or not." With respect to this statement:

- a) Isn't it true that Cinergy needs to purchase about 2000 MW of power? Won't Cinergy be able to use any power they would buy under PURPA?
- b) Isn't it true that under Cinergy's avoided costs, neither Cinergy nor its customers would be financially penalized by buying power at PURPA avoided cost rates.
- c) Please provide both Cinergy's filed PURPA avoided cost rates and the avoided cost rates Cinergy uses in DSM cost/benefit calculations. If these two rates are different, please explain in detail why they are different.

RESPONSE:

- a) As stated on page 1-7 of the IRP, the restructuring legislation in Ohio had not been passed at the time the analysis for the IRP was begun. Therefore, the load level used in the analysis does not reflect any customer switching in Ohio beginning 1/1/2001. The amount of power that Cinergy needs to purchase in 2001 with no customer switching is 1740 MW (see Figure 1-3). However, if a significant amount of load in Ohio switches in 2001, Cinergy's need to purchase could be substantially reduced, which could mean that Cinergy might not be able to use all the power they might have to buy under PURPA.
- b) The answer to this question depends on whether or not the rates are recalculated each year to reflect changes in the actual avoided cost. If the rates are adjusted every year, then theoretically neither Cinergy nor its customers should be financially penalized by buying power at avoided cost rates. However, if Cinergy is forced to lock in the avoided costs up front over a long-term contract, it is possible that the actual avoided costs could go down, but Cinergy and its customers would be forced to pay at rates above the actual avoided cost until the end of the contract. This is the problem that some utilities in the northeast experienced with their NUG contracts.

- c) Attachment AttGen-01-016-A is CG&E's Cogeneration and Small Power Production Sale and Purchase Tariff. Attachment AttGen-01-016-B is ULH&P's Cogeneration and Small Power Production Sale and Purchase Tariff-100kW or Less. Attachment AttGen-01-016-C is ULH&P's Cogeneration and Small Power Production Sale and Purchase Tariff- Greater than 100kW. Attachment AttGen-01-016-D is PSI's Standard Contract Rider No. 50- Parallel Operation- For Qualifying Facility. Attachment AttGen-01-016-E is the avoided cost used by Cinergy in the DSM screening for the 1999 IRP. The DSM screening rates are different from the CG&E and ULH&P filed rates because these filed rates have not been updated recently. The DSM screening rates are different than the PSI filed rate because Indiana has a specific methodology that must be utilized in calculating the rate that is different than the methodology that Cinergy uses on its own to calculate its avoided cost.

WITNESS RESPONSIBLE:

Diane Jenner



80000 SERIES
10% P.C.W.

A

COGENERATION AND SMALL POWER
PRODUCTION SALE AND PURCHASE TARIFF

APPLICABILITY

The provisions of this tariff are applicable to qualifying cogeneration and small power production facilities with capacity of 100 kW or less as adopted by the Federal Energy Regulatory Commission (FERC), Title 18 CFR Part 292.201 through 292.207.

DEFINITIONS

Definitions of the following terms are as adopted by the FERC, Title 18 CFR Part 292.101:

- | | |
|-------------------------------------|--------------------------|
| (1) Qualifying Facility | (6) Interconnection Cost |
| (2) Cogeneration Facility | (7) Supplementary Power |
| (3) Small Power Production Facility | (8) Back-up Power |
| (4) Purchase | (9) Interruptible Power |
| (5) Sale | (10) Maintenance Power |
| | (11) System |

OBLIGATIONS

- (1) Purchases
The Company shall purchase from qualifying facilities in accordance with Part 292.304.
- (2) Sales
The Company shall sell to qualifying facilities in accordance with Part 292.305.
- (3) Interconnections
The Company shall make interconnections with qualifying facilities as may be necessary to accomplish purchases or sales and the qualifying facility will pay for the interconnection costs in accordance with Part 292.306. Interconnection costs will be paid over a period not to exceed thirty-six months as mutually agreed upon by the Q.F. and the Company.
- (4) System Emergencies
During system emergencies the Company may discontinue purchases and sales or the qualifying facilities may be required to provide energy or capacity in accordance with Part 292.304(f) and 292.307.
- (5) Service Agreement
The qualifying facility shall enter into a written Service Agreement with the Company.

STANDARDS FOR OPERATING RELIABILITY

The technical requirements necessary for operating reliability are set forth in the Company's procedure entitled "Guideline Technical Requirements for Parallel Operation of Customer Generation on the Secondary Distribution System."

Filed pursuant to Order dated August 7, 1984 in Case No. 83-33-EL-EFC, Subfile A before the Public Utilities Commission of Ohio.

Issued: August 14, 1984

Effective: August 14, 1984
Issued by W. H. Dickhoner, President

RATE SCHEDULES

Rates for Purchases from qualifying facilities:

<u>Time of Day Metering</u>	<u>¢/kWh</u>
On Peak - Weekdays excluding holidays 8:00 a.m.-11:00 p.m.	2.0794
Off Peak - All Other Hours	1.8898
<u>No Time of Day Metering</u>	
All Hours	1.8898

Rates for Sales of supplemental power, back-up power, interruptible power, or maintenance power to qualifying facilities will be accomplished through applicable tariff schedules as filed with the Public Utilities Commission of Ohio.

TERMS AND CONDITIONS

The supplying and billing for service and all conditions applying thereto, are subject to the jurisdiction of the Public Utilities Commission of Ohio, and to Company's Service Regulations currently in effect, as filed with the Public Utilities Commission of Ohio.

Filed pursuant to Order dated August 7, 1984 in Case No. 83-33-EL-EFC, Subfile A before the Public Utilities Commission of Ohio.

Issued: August 14, 1984
Issued by W. H. Dickhoner, President

Effective: August 14, 1984

COGENERATION AND SMALL POWER
PRODUCTION SALE AND PURCHASE TARIFF-100 KW OR LESS

APPLICABILITY

The provisions of this tariff are applicable to qualifying cogeneration and small power production facilities as adopted by the Kentucky Public Service Commission (Ky. PSC), Regulation 807 KAR 5:054.

DEFINITIONS

Definitions of the following terms are as adopted by the Ky. PSC, 807 KAR 5:054 - Section 2:

- | | |
|-------------------------------------|--------------------------|
| (1) Qualifying Facility | (7) Interconnection Cost |
| (2) Cogeneration Facility | (8) Supplementary Power |
| (3) Small Power Production Facility | (9) Back-up Power |
| (4) Purchase | (10) Interruptible Power |
| (5) Sale | (11) Maintenance Power |
| (6) Avoided Cost | (12) System |

OBLIGATIONS

- (1) Purchases
The utility shall purchase from qualifying facilities in accordance with 807 KAR 5:054 - Sections 6 and 7.
- (2) Sales
The utility shall sell to qualifying facilities in accordance with 807 KAR 5:054 - Section 6.
- (3) Interconnections
The utility shall make interconnections with qualifying facilities as may be necessary to accomplish purchases or sales and the qualifying facility will pay for the interconnection costs in accordance with 807 KAR 5:054 - Section 6.
- (4) System Emergencies
During system emergencies the utility may discontinue purchases and sales or the qualifying facilities may be required to provide energy or capacity in accordance with 807 KAR 5:054 - Section 6.

STANDARDS FOR OPERATING RELIABILITY

The technical requirements necessary for operating reliability are set forth in the Company's procedure entitled "Guideline Technical Requirements for Parallel Operation of Customer Generation on the Transmission System."

Issued by authority of an Order of the Kentucky Public Service Commission in Case No. 9299.

Issued: February 27, 1986

Effective: November 25, 1985

Issued by W. H. Dickhoner, President

RATE SCHEDULES

Rates for Purchases from qualifying facilities:

Purchase Rate shall be 1.95¢/kWh for all kilowatt-hours delivered.

Rates for Sales to qualifying facilities will be accomplished through existing tariff schedules on file with the Ky. PSC.

SERVICE REGULATIONS, TERMS AND CONDITIONS

The QF shall enter into a written contract with the Company. Such contract shall set forth any specific arrangements between the parties based on the individual circumstances so involved.

The supplying and billing for service and all conditions applying thereto, are subject to the jurisdiction of the Kentucky Public Service Commission, and to Company's Service Regulations currently in effect, as filed with the Public Service Commission of Kentucky.

Issued by authority of an Order of the Kentucky Public Service Commission in Case No. 9299.

Issued: February 27, 1986

Effective: November 25, 1985

Issued by W. H. Dickhoner, President

COGENERATION AND SMALL POWER
PRODUCTION SALE AND PURCHASE TARIFF-GREATER THAN 100 KW

APPLICABILITY

The provisions of this tariff are applicable to qualifying cogeneration and small power production facilities as adopted by the Kentucky Public Service Commission (Ky. PSC), Regulation 807 KAR 5:054.

DEFINITIONS

Definitions of the following terms are as adopted by the Ky. PSC, 807 KAR 5:054 - Section 2:

- | | |
|-------------------------------------|--------------------------|
| (1) Qualifying Facility | (7) Interconnection Cost |
| (2) Cogeneration Facility | (8) Supplementary Power |
| (3) Small Power Production Facility | (9) Back-up Power |
| (4) Purchase | (10) Interruptible Power |
| (5) Sale | (11) Maintenance Power |
| (6) Avoided Cost | (12) System |

OBLIGATIONS

- (1) Purchases
The utility shall purchase from qualifying facilities in accordance with 807 KAR 5:054 - Sections 6 and 7.
- (2) Sales
The utility shall sell to qualifying facilities in accordance with 807 KAR 5:054 - Section 6.
- (3) Interconnections
The utility shall make interconnections with qualifying facilities as may be necessary to accomplish purchases or sales and the qualifying facility will pay for the interconnection costs in accordance with 807 KAR 5:054 - Section 6.
- (4) System Emergencies
During system emergencies the utility may discontinue purchases and sales or the qualifying facilities may be required to provide energy or capacity in accordance with 807 KAR 5:054 - Section 6.

STANDARDS FOR OPERATING RELIABILITY

The technical requirements necessary for operating reliability are set forth in the Company's procedure entitled "Guideline Technical Requirements for Parallel Operation of Customer Generation on the Transmission System."

RATE SCHEDULES

Rates for Purchases from qualifying facilities:

The Purchase Rate for all kilowatt-hours delivered shall be determined according to the standard calculation of avoided cost as set forth herein.

Rates for Sales to qualifying facilities will be accomplished through existing tariff schedules on file with the Ky. PSC.

Issued by authority of an Order of the Kentucky Public Service Commission dated Case No. 9299.

Issued: February 27, 1986

Effective: November 25, 1985

Issued by W. H. Dickhoner, President

Calculation Of Avoided Cost

The methodology to determine avoided cost involves the use of the Electric Generation Expansion Analysis System (EGEAS) to develop differential long run marginal costs between The Cincinnati Gas & Electric Company's current optimum base case generation expansion plan and an optimum expansion plan including the QF. The key feature of the methodology is the complete reoptimization of the base case generation expansion plan including capital costs, fuel cost, and operation and maintenance expenses to insure that the ratepayer will remain indifferent toward the capacity and energy cost of any cogenerator or small power producer.

EGEAS is a proprietary generation expansion model written by the Massachusetts Institute of Technology under contract to the Electric Power Research Institute. The model uses a technique called dynamic programming to devise the optimum generation expansion plan. The dynamic programming module typically tests over 1,000 different generation expansion plans in arriving at the single best plan.

The first step is the preparation of a base case using CG&E's current generation expansion plan. A change case is then prepared which incorporates both the technical characteristics including unit capacity and reliability and the duration of the contract of the qualifying facility (QF). With the QF entered as a committed unit, the EGEAS model reoptimizes the generation expansion plan by adjusting both utility unit sizes and timing to find the new least cost strategy. By specifying the cogenerator as a zero cost, must run source of energy, the model accumulates all long run marginal cost differences between the base case and the change case. Finally a levelized annuity based on the length of contract is calculated from the long run marginal cost. Transmission costs are added to yield the total avoided cost. The total avoided cost is then divided into capacity and energy components by subtracting the marginal energy cost from the total cost. The remainder is the avoided capacity cost. The method assumes that the avoided cost and thus the levelized payment to the qualifying facility begins on the commercial operation date of the QF.

Further explanation of this tariff and methodology can be obtained from the Company.

Sample Rates

To illustrate the methodology, Table 1 below illustrates the results of applying the avoided cost calculation to a cogenerator whose capacity is 100 MW and whose availability is 86%. The actual credit depends on the capacity, availability and contract length of the prospective QF. The minimum capacity required to qualify for the capacity component is 1.5 MW.

<u>Cogen/Spp Contract Length</u>	<u>Capacity Component</u>	<u>Weighted Energy Component</u>	<u>Total Cogen/Spp Credit (¢/kWh All Hours)</u>
5 Yr.	0.81¢/kWh	1.95¢/kWh	2.76¢/kWh
10 Yr.	1.16¢/kWh	1.95¢/kWh	3.11¢/kWh
15 Yr.	1.63¢/kWh	1.95¢/kWh	3.58¢/kWh
20 Yr.	2.92¢/kWh	1.95¢/kWh	4.87¢/kWh

Issued by authority of an Order of the Kentucky Public Service Commission dated Case No. 9299.

Issued: February 27, 1986

Effective: November 25, 1985

Issued by W. H. Dickhoner, President

The Union Light, Heat and Power Company

107 Brent Spence Square

Covington, Kentucky 41011

KY. P.S.C. NO. 4

Original Sheet No. 94

Page 3 of 3

SERVICE REGULATIONS, TERMS AND CONDITIONS

The QF shall enter into a written contract with the Company. Such contract shall set forth any specific arrangements between the parties based on the individual circumstances so involved.

The supplying and billing for service and all conditions applying thereto, are subject to the jurisdiction of the Kentucky Public Service Commission, and to Company's Service Regulations currently in effect, as filed with the Public Service Commission of Kentucky.

Issued by authority of an Order of the Kentucky Public Service Commission dated Case No. 9299.

Issued: February 27, 1986

Effective: November 25, 1985

Issued by W. H. Dickhoner, President

Case No. 99-449
AttGen-01-016-C
Page 3 of 3 pages

PSI ENERGY, INC.
1000 East Main Street
Plainfield, Indiana 46168

IURC NO. 13
Third Revised Sheet No. 50
Canceling Second Revised Sheet No. 50

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION-
FOR QUALIFYING FACILITY**

Availability

Available to any Customer contracting for parallel operation of a qualifying facility (cogeneration or small power production facility) in accordance with 170 IAC 4-4.1-1 et. seq. The qualifying facility must be located adjacent to an electric line of Company that is adequate for the service provided by such qualifying facility.

Contract

Customer shall enter into a contract in the applicable form (Exhibit A—Contract for the Purchase of Energy from Qualifying Facility or Exhibit B—Contract for the Purchase of Energy and Capacity from Qualifying Facility) before operating any generating equipment electrically connected with Company's electric system, and, in each case of parallel operation, Customer shall operate its electric facilities in such a manner as not to cause undue fluctuations in voltage, intermittent load characteristics or otherwise interfere with the operation of Company's electric system. Company will grant such permission only in cases where it is satisfied that such parallel operation is practicable without interference or probability of interference with the ability of Company to render adequate service to its other Customers.

In each case where parallel operation is permitted, such service is subject to the provisions and Special Terms and Conditions of this Rider and the provisions of the applicable contract.

Rate for Purchase of Energy

Company will purchase energy from the qualifying facility of Customer in accordance with the conditions and limitations of this Rider and the applicable contract at the following rate:

For all kwh supplied per month. 1.620¢ per kwh

Measured by suitable integrating instruments.

This rate will be adjusted by the current fuel cost charge in accordance with "Standard Contract Rider No. 60—Fuel Cost Charge."

Rate for Purchase of Capacity

Company will purchase capacity supplied from the qualifying facility of Customer in accordance with the conditions and limitations of this Rider and the applicable contract at the following rate:

Rate per kw per month of Contracted Capacity \$3.22 per kw

Customer shall receive from Company payment for such qualifying facility capacity in accordance with the following:
\$3.22 per kw x Contracted Capacity in kw x $\left(\frac{E}{K \times T}\right)$ per month

Where: E = kilowatt-hours supplied by qualifying facility during the Peak Period
K = kilowatts of capacity the qualifying facility contracts to provide to Company
T = number of hours in the Peak Period

Issued: May 26, 1999

Effective: May 26, 1999

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION-
FOR QUALIFYING FACILITY**

Peak Period shall be defined as follows:

For the months of June through September, the Peak Period shall be Monday through Saturday 9:00 a.m. through 9:00 p.m. (Eastern Standard Time), excluding holidays defined below. For the months of October through May, the Peak Period shall be Monday through Saturday 7:00 a.m. through 9:00 p.m. (Eastern Standard Time), excluding holidays defined below.

The entire twenty-four (24) hours of the following holidays will be considered as off-peak hours:

New Year's Day	Labor Day
Memorial Day	Thanksgiving Day
Independence Day	Christmas Day

whenever any of the above holidays occur on a Sunday and the following Monday is legally observed as a holiday, the entire twenty-four (24) hours of such Monday will be considered as off-peak hours.

Contracted Capacity shall be the amount of capacity expressed in terms of kilowatts that Customer guarantees the qualifying facility will supply to Company as provided for in the contract for such service.

Special Terms and Conditions

1. It shall be Customer's responsibility to inform Company of any changes in its electric generation capability.
2. Customer shall install, operate and maintain, at its own sole cost and expense, all control and protective devices and appurtenances thereto (hereinafter called the "Control Equipment"), as designated by Company, necessary to assure that no disturbance to the electric service rendered by Company to any of its other customers will result from the connection between Customer's said generators and Company's electric system. Customer shall agree that the Control Equipment will, at Customer's sole cost and expense, be so installed so as to provide adequate protection to Company's system at all times, and that Customer will be solely responsible for the operation and maintenance of the Control Equipment, except as provided in item 3 of these Special Terms and Conditions.
3. Customer shall agree that the relays included in the Control Equipment which, in Company's opinion, require coordination with Company, shall be reviewed and approved by Company, and such relays shall be set, reset, and adjusted according to Company approved settings, and that Customer will not at any time set, reset, adjust or tamper with such relays or permit the same to be set, reset, adjusted or tampered with by any person except to verify that such equipment complies with Company approved settings. In some cases, as determined by Company, Customer may be required to enter into a "Substation Operation and Maintenance Agreement" for setting, resetting, and adjusting the Control Equipment.
4. Customer shall agree that, at all times when its said generators are being operated in parallel with Company's electric system, Customer will so operate said generators in such a manner that no disturbance will be produced thereby to the service rendered by Company to any of its other Customers
5. Customer shall agree to pay Company, in accordance with "Standard Contract Rider No. 53—Excess Facilities," for all excess facilities required by Company to provide service to such parallel operation, as determined by Company, including any additional metering equipment required for Company to purchase electric energy from the qualifying facility.
6. Customer shall agree that Company shall not be liable for any damage to, or breakdown of Customer's equipment operated in parallel with Company's electric system.
7. Customer shall agree to release, indemnify, and hold harmless Company from any and all claims for injury to persons or damage to property due to or in any way connected with the operation of Customer's said generators.

Issued: October 2, 1997

Effective: October 2, 1997

PSI ENERGY, INC.
1000 East Main Street
Plainfield, Indiana 46168

IURC NO. 13
Original Sheet No. 50-B

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION-
FOR QUALIFYING FACILITY**

8. Company may install necessary metering to monitor the electric output of Customer's generating facility. Customer shall agree that the watt-hour and reactive-ampere-hour meters installed by Company to measure electric energy may be provided with ratchets to prevent reverse registration.
9. Customer shall agree that Company shall at all times have immediate access to breakers or any other equipment that will isolate Customer's generators from Company's electric system. Company shall have the right and authority to isolate said generators, at Company's sole discretion, if Company believes continued parallel operation creates or contributes to an emergency on either Company's or Customer's electric system.
10. Supplementary, Backup, Interruptible and/or Maintenance Power, as defined in 170 IAC 4-4.1-1, will be supplied by Company only in accordance with the applicable rate schedules, this Rider, the applicable contract and the applicable Service Schedules to be filed by Company with the Commission. Such rates shall be non-discriminatory and shall be based on the costs to provide such service to Customer.
11. To the extent required by law, Company will make available wheeling service to Customer in accordance with the provisions of 170 IAC 4-4.1-6.

Issued: October 2, 1997

Effective: October 2, 1997

Case No. 99-449
AttGen-01-016-D
Page 3 of 13

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION--
FOR QUALIFYING FACILITY**

**Contract for the Purchase of
Energy from Qualifying Facility**

This Contract, made and entered into as of this _____ day of _____, 19____, by and between PSI ENERGY, INC. (hereinafter "Company"), an Indiana corporation and an electric utility subject to the jurisdiction of the Indiana Utility Regulatory Commission (hereinafter "Commission"); and _____ (hereinafter "Customer").

WITNESSETH:

WHEREAS, Customer is constructing or has constructed the following facilities (description): _____ located in _____, Indiana; and

WHEREAS, Customer's facility is a "qualifying facility" (hereinafter "QF") as defined in 170 IAC 4-4.1-1; and

WHEREAS, Customer desires to operate its QF in parallel with Company's electric system, and to engage in electric energy transactions with Company, but Customer does not desire to have Company purchase any of the capacity of Customer's QF; and

WHEREAS, Company's electric energy service to Customer and Customer's electric energy service to Company shall have the following characteristics: _____

NOW, THEREFORE, in consideration thereof, Customer and Company agree as follows:

1. **Service Option.** At the beginning of the contract period, Customer shall elect one of the two following options:
Option A. Simultaneous sale of the entire electric energy output of the QF to Company, and purchase of all of Customer's electric energy requirements from Company (simultaneous purchase and sale shall relate to the net electric energy output of the QF, exclusive of the electricity used in the generating process); or
Option B. Use of electric energy output of the QF by Customer to supply Customer's own electric energy requirements, and purchase of Customer's remaining requirements, if any, from Company.

Customer elects Option _____.

2. **Interconnection.** Customer shall, prior to interconnecting with Company's electric system, provide to Company a written request for interconnection and submit to Company, for review and approval, a detailed electrical plan of Customer's QF, including "Control Equipment," as defined in "Standard Contract Rider No. 50—Parallel Operation for Qualifying Facility". Company's review and possible approval of Customer's plan does not constitute approval as to safety or compliance with applicable codes or requirements, but constitutes only acceptance of Customer's interconnection with Company's electric system. The facilities installed by Customer shall comply with the National Electrical Code, the National Electrical Safety Code, the Company's rules and regulations for electric service in effect from time to time, the rules and regulations of the Commission, and all other applicable local, state, and federal codes and laws. It shall be Customer's responsibility to insure such compliance.

In accordance with 170 IAC 4-4.1-7, Customer shall install, operate, and maintain in good order, at its sole cost and expense, such Control Equipment as shall be designated by Company for safe, efficient and reliable operation in parallel with Company's electric system. Customer shall bear full responsibility for the installation and safe operation of this equipment.

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION--
FOR QUALIFYING FACILITY**

**Contract for the Purchase of
Energy from Qualifying Facility**

If required by Company, Customer agrees to enter into a "Substation Operation and Maintenance Agreement" providing for Company to set, reset and adjust the Control Equipment. Customer shall make no modification to the QF or Control Equipment without prior review and approval of Company.

- 3. Operation by Customer.** Customer shall operate its facilities in such a manner as not to cause undue fluctuations in voltage, intermittent load characteristics or otherwise interfere with the operation of Company's electric system. At all times when the QF is being operated in parallel with Company's electric system, Customer shall so operate the QF in such a manner that no disturbance will be produced thereby to the service rendered by Company to any of its other Customers.

Customer's Control Equipment shall immediately, completely, and automatically disconnect and isolate the Customer's generating equipment from Company's electric system in the event of a fault on Company's electric system, a fault on Customer's electric system, or loss of source on Company's electric system. This automatic disconnecting device shall not be capable of reclosing until after service is restored on Company's electric system. Additionally, if the fault is on Customer's electric system, the automatic disconnecting device shall not be reclosed except in accordance with the approved procedures.

- 4. Access by Company.** Company shall at all times have immediate access to breakers or any other equipment that will isolate Customer's generating equipment from Company's electric system. Company shall have the right and authority to isolate said generating equipment at Company's sole discretion if Company believes that (a) continued parallel operation creates or contributes to an emergency on either Company's or Customer's electric system or that (b) Customer's generating equipment presents a hazardous condition or that (c) Customer's generating equipment interferes with the operation of Company's electric system. In non-emergency situations, Company shall give Customer reasonable notice prior to isolating Customer's generating equipment.
- 5. Application.** It is understood and agreed that this Contract applies only to the operation of Customer's QF located at _____, Indiana.
- 6. Metering and Excess Facilities.** The electric energy supplied hereunder by Customer shall be measured by integrating instruments supplied by Company. Customer shall pay Company, in accordance with "Standard Contract Rider No. 53—Excess Facilities," for all excess facilities required by Company to provide service to such parallel operation, as determined by Company, including any additional metering equipment required for Company to purchase electric energy from the QF, as determined by Company. Company may, at its sole option, install additional recording instruments at its own expense.
- 7. System Emergency.** Company shall not be required to purchase from or sell electric energy to Customer at the time of an emergency on either Company's or Customer's electric system. System emergencies causing discontinuance of parallel operation are subject to verification by the Commission.
- 8. Purchase of Energy.** Company will purchase the electric energy supplied to its system from Customer's QF at the rate of the average of the marginal running costs of Company adjusted for line losses in accordance with 170 IAC 4-4.1-8 (a), as then set forth in "Standard Contract Rider No. 50—Parallel Operation For Qualifying Facility." Company shall file annually with the Commission data supporting such costs. The basis for the determination of such rate for the purchase of energy shall be an appropriate generation simulation program with and without one megawatt of load decrement. Company shall make no capacity payments for the energy supplied by Customer's QF.

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION--
FOR QUALIFYING FACILITY**

**Contract for the Purchase of
Energy from Qualifying Facility**

9. **Output.** The maximum electric energy output of Customer's QF expected to be made available to Company is _____.
10. **Power Supplied by Company.** Supplementary, Backup, Interruptible and/or Maintenance Power, as defined in 170 IAC 4-4.1-1, requested by Customer shall be supplied by Company only in accordance with the applicable rate schedules, "Standard Contract Rider No. 50—Parallel Operation For Qualifying Facility," this Contract and the applicable Service Schedules to be filed by Company with the Commission. Such rates shall be non-discriminatory and shall be based on the costs to provide such service.
11. **Billing.** The meter measuring the supply of electric energy to Company's electric system shall be read by Company every _____, and Company shall provide those meter readings to Customer and render payment therefor within _____ after the meter reading.

Customer shall be billed for the electric service requirements used by Customer in accordance with Section 10 of this Contract.

12. **Insurance.** Customer shall procure and keep in force during all periods of parallel operation with Company's electric system, the following insurance, with insurance carriers acceptable to Company, with Company as a Named Insured as Company's interests may appear in this Contract, and in amounts not less than the following:

Coverage	Limits
Comprehensive General Liability	
Contractual Liability	(To be inserted depending upon the
Bodily Injury	nature and size of the QF.)
Property Damage	

Customer shall deliver a CERTIFICATE OF INSURANCE verifying the required coverage to:

PSI Energy, Inc.
Attention: District Manager

at least fifteen (15) days prior to any interconnection with Company's electric system by Customer.

13. **Release and Indemnification.** Each party shall release, indemnify and hold harmless the other party from and against all claims, liability, damages and expenses, including attorneys' fees, based on any injury to any person, including loss of life, or damage to any property, including loss of use thereof, arising out of, resulting from or connected with, or that may be alleged to have arisen out of, resulted from or connected with, an act or omission by such other party, its employees, agents, representatives, successors or assigns in the construction, ownership, operation or maintenance of such party's facilities used in connection with this Contract. Upon the written request of the party seeking relief under this Section 13, the other party shall defend any suit asserting a claim covered by this Section 13. If a party is required to bring an action to enforce its rights under this Section 13, either as a separate action or in connection with another action, and said rights are upheld, the party from whom the relief was sought shall reimburse the party seeking such relief for all expenses, including attorneys' fees, incurred in connection with such action.

Issued: October 2, 1997

Effective: October 2, 1997

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION--
FOR QUALIFYING FACILITY**

**Contract for the Purchase of
Energy from Qualifying Facility**

14. **Term.** This Contract shall be in effect for an initial term of _____ years, beginning _____, 19____ and ending _____ 19____, and thereafter shall continue in effect for succeeding like terms, unless and until terminated by written notice given by one party to the other party at least sixty (60) days prior to the initial date of expiration, or any succeeding expiration date, and stating an intention to terminate this Contract as of the applicable expiration date.
15. **Termination of Any Applicable Existing Agreement.** From and after the date when service commences under this Contract, this Contract shall supersede any oral and/or written agreement between Company and Customer concerning the service covered by this Contract and any such agreement shall be deemed to be terminated as of the date service commences under this Contract.
16. **Force Majeure.** "Force Majeure" means any cause or event not reasonably within the control of the party claiming Force Majeure, including, but not limited to, the following: acts of God, strikes, lockouts, or other industrial disturbances; acts of public enemies; orders or permits or the absence of the necessary orders or permits of any kind which have been properly applied for from the government of the United States, the State of Indiana, any political subdivision or municipal subdivision or any of their departments, agencies or officials, or any civil or military authority; unavailability of a fuel or resource used in connection with the generation of electricity; extraordinary delay in transportation; unforeseen soil conditions; equipment, material, supplies, labor or machinery shortages; epidemics; landslides; lightning; earthquakes; fires; hurricanes; tornadoes; storms; floods; washouts; drought; arrest; war; civil disturbances; explosions; breakage or accident to machinery, transmission lines, pipes or canals; partial or entire failure of utilities; breach of contract by any supplier, contractor, subcontractor, laborer or materialman; sabotage; injunction; blight; famine; blockade; or quarantine.
- If either party is rendered wholly or partly unable to perform its obligations because of Force Majeure, both parties shall be excused from whatever obligations are affected by the Force Majeure (other than the obligation to pay money) and shall not be liable or responsible for any delay in the performance of, or the inability to perform, any such obligations for so long as the Force Majeure continues. The party suffering an occurrence of Force Majeure shall, as soon as is reasonably possible after such occurrence, give the other party written notice describing the particulars of the occurrence and shall use its best efforts to remedy its inability to perform, provided, however, that the settlement of any strike, walkout, lockout or other labor dispute shall be entirely within the discretion of the party involved in such labor dispute.
17. **Invalid Legal Basis.** This Contract has been entered into by Company and Customer pursuant to the Commission's October 5, 1984 Order in Cause No. 37494 approving rules and regulations with respect to cogeneration and alternate energy production facilities, 170 IAC 4-4.1-1 et. seq., under Public Law 72-1982, IC 8-1-2.4-1 et. seq. In the event that any part of such Commission Order, such rules and regulations or such law is finally adjudged by a court of competent jurisdiction to be invalid, then either Company or Customer may, at its sole option, terminate this Contract at any time within one hundred eighty (180) days of the date such determination becomes final by giving sixty (60) days' written notice to the other party stating an intention to terminate this Contract at the expiration of such sixty (60) day period.
18. **Wheeling Service.** To the extent required by law, Company will make available wheeling service to Customer in accordance with the provisions of 170 IAC 4-4.1-6.

PSI ENERGY, INC.
1000 East Main Street
Plainfield, Indiana 46168

IURC NO. 13
Exhibit A
Page No. 5 of 5

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION--
FOR QUALIFYING FACILITY**

**Contract for the Purchase of
Energy from Qualifying Facility**

IN WITNESS WHEREOF, the parties have executed this Contract, effective as of the date first above written.

PSI ENERGY, INC.
"Company"

By: _____

"Customer"

By: _____

Issued: October 2, 1997

Effective: October 2, 1997

Case No. 99-449
AttGen-01-016-D
Page 8 of 13

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION--
FOR QUALIFYING FACILITY**

**Contract for the Purchase of
Energy and Capacity from Qualifying Facility**

This Contract, made and entered into as of this _____ day of _____, 19____, by and between PSI ENERGY, INC. (hereinafter "Company"), an Indiana corporation and an electric utility subject to the jurisdiction of the Indiana Utility Regulatory Commission (hereinafter "Commission"), and _____ (hereinafter "Customer").

WITNESSETH:

WHEREAS, Customer is constructing or has constructed the following facilities (description): _____

located in _____, Indiana; and

WHEREAS, Customer's facility is a "qualifying facility" (hereinafter "QF") as defined in 170 IAC 4-4.1-1; and

WHEREAS, Customer desires to operate its QF in parallel with Company's electric system, and to engage in electric energy transactions with Company, but Customer does not desire to have Company purchase any of the capacity of Customer's QF; and

WHEREAS, Company's electric energy service to Customer and Customer's electric energy service to Company shall have the following characteristics: _____

NOW, THEREFORE, in consideration thereof, Customer and Company agree as follows:

1. Service Option. At the beginning of the contract period, Customer shall elect one of the two following options:

Option A. Simultaneous sale of the entire electric energy output of the QF to Company, and purchase of all of Customer's electric energy requirements from Company (simultaneous purchase and sale shall relate to the net electric energy output of the QF, exclusive of the electricity used in the generating process); or

Option B. Use of electric energy output of the QF by Customer to supply Customer's own electric energy requirements, and purchase of Customer's remaining requirements, if any, from Company.

Customer elects Option _____.

2. Interconnection. Customer shall, prior to interconnecting with Company's electric system, provide to Company a written request for interconnection and submit to Company, for review and approval, a detailed electrical plan of Customer's QF, including "Control Equipment," as defined in "Standard Contract Rider No. 50—Parallel Operation for Qualifying Facility". Company's review and possible approval of Customer's plan does not constitute approval as to safety or compliance with applicable codes or requirements, but constitutes only acceptance of Customer's interconnection with Company's electric system. The facilities installed by Customer shall comply with the National Electrical Code, the National Electrical Safety Code, the Company's rules and regulations for electric service in effect from time to time, the rules and regulations of the Commission, and all other applicable local, state, and federal codes and laws. It shall be Customer's responsibility to insure such compliance.

In accordance with 170 IAC 4-4.1-7, Customer shall install, operate, and maintain in good order, at its sole cost and expense, such Control Equipment as shall be designated by Company for safe, efficient and reliable operation in parallel with Company's electric system. Customer shall bear full responsibility for the installation and safe operation of this equipment.

Issued: October 2, 1997

Effective: October 2, 1997

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION--
FOR QUALIFYING FACILITY**

**Contract for the Purchase of
Energy and Capacity from Qualifying Facility**

If required by Company, Customer agrees to enter into a "Substation Operation and Maintenance Agreement" providing for Company to set, reset and adjust the Control Equipment. Customer shall make no modification to the QF or Control Equipment without prior review and approval of Company.

3. **Operation by Customer.** Customer shall operate its facilities in such a manner as not to cause undue fluctuations in voltage, intermittent load characteristics or otherwise interfere with the operation of Company's electric system. At all times when the QF is being operated in parallel with Company's electric system, Customer shall so operate the QF in such a manner that no disturbance will be produced thereby to the service rendered by Company to any of its other Customers.

Customer's Control Equipment shall immediately, completely, and automatically disconnect and isolate the Customer's generating equipment from Company's electric system in the event of a fault on Company's electric system, a fault on Customer's electric system, or loss of source on Company's electric system. This automatic disconnecting device shall not be capable of reclosing until after service is restored on Company's electric system. Additionally, if the fault is on Customer's electric system, the automatic disconnecting device shall not be reclosed except in accordance with the approved procedures

4. **Access by Company.** Company shall at all times have immediate access to breakers or any other equipment that will isolate Customer's generating equipment from Company's electric system. Company shall have the right and authority to isolate said generating equipment at Company's sole discretion if Company believes that (a) continued parallel operation creates or contributes to an emergency on either Company's or Customer's electric system or that (b) Customer's generating equipment presents a hazardous condition or that (c) Customer's generating equipment interferes with the operation of Company's electric system. In non-emergency situations, Company shall give Customer reasonable notice prior to isolating Customer's generating equipment.

5. **Application.** It is understood and agreed that this Contract applies only to the operation of Customer's QF located at _____, Indiana.

6. **Metering and Excess Facilities.** The electric energy supplied hereunder by Customer shall be measured by integrating instruments supplied by Company. Customer shall pay Company, in accordance with "Standard Contract Rider No. 53 Excess Facilities," for all excess facilities required by Company to provide service to such parallel operation, as determined by Company, including any additional metering equipment required for Company to purchase electric energy from the QF, as determined by Company. Company may, at its sole option, install additional recording instruments at its own expense.

7. **System Emergency.** Company shall not be required to purchase from or sell electric energy to Customer at the time of an emergency on either Company's or Customer's electric system. System emergencies causing discontinuance of Parallel operation are subject to verification by the Commission.

8. **Purchase of Energy.** Company will purchase the electric energy supplied to its system from Customer's QF at the rate of the average of the marginal running costs of Company adjusted for line losses in accordance with 170 IAC 44.18 (a), as then set forth in "Standard Contract Rider No. 50 Parallel Operation For Qualifying Facility." Company shall file annually with the Commission data supporting such costs. The basis for the determination of such rate for the purchase of energy shall be an appropriate generation simulation program with and without one megawatt of load decrement. Company shall make no capacity payments for the energy supplied by Customer's QF.

Issued: October 2, 1997

Effective: October 2, 1997

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION--
FOR QUALIFYING FACILITY**

**Contract for the Purchase of
Energy and Capacity from Qualifying Facility**

9. **Purchase of Capacity.** Company will purchase the electric capacity supplied to its system from Customer's QF at the Company's monthly avoided cost of capacity for Company per kilowatt in accordance with 170 IAC 4-4.1-9 (a), as then set forth in "Standard Contract Rider No. 50—Parallel Operation For Qualifying Facility." Company shall file annually with the Commission data supporting such costs.

Monthly payments for such purchase of capacity shall be adjusted by the application of a factor developed in accordance with 170 IAC 4-4.1-9 (d) reflecting actual output of the QF.

10. **Capacity.** The amount of "Contracted Capacity" that Customer guarantees the QF will make available to Company during each year of the Contract is _____ kw.
11. **Performance.** The parties agree that the amount of the capacity payment which Company is to make to Customer for the QF is based upon the QF's performance of its obligation to provide Contracted Capacity during the term of this Contract. The parties further agree that in the event Company does not receive such full performance by reason of a termination of this Contract prior to its expiration or a reduction in the amount of such Contracted Capacity, (1) Company shall be deemed damaged by reason thereof, (2) it would be impracticable or extremely difficult to fix the actual damages to Company resulting therefrom, (3) the reductions, offsets and refund payments as provided hereafter, as applicable, are in the nature of adjustments in prices and are to be considered liquidated damages, and not a penalty, and are fair and reasonable, and (4) such reductions, offsets and refund payments represent a reasonable endeavor by the parties to estimate a fair compensation for the reasonable damages that would result from such premature termination or failure to deliver the specified amount of capacity.
12. **Refund.** In the event this Contract is terminated or the Contracted Capacity is reduced prior to the expiration of the initial term of this Contract, Customer shall refund to Company the capacity payments in excess of those capacity payments which would have been made had all of the capacity or the reduced capacity, whichever is applicable, been subject to a capacity rate based on the actual term of delivery to Company.
13. **Probationary Period.** Except in the event of Force Majeure, as defined in Section 21 of this Contract, if, within any twelve (12) month period during the term of this Contract ending on the anniversary date of the date that the QF first provided capacity to Company under this Contract, the QF fails to provide Company with the Contracted Capacity specified in this Contract, the capacity for which Customer shall be entitled to capacity payments during the subsequent twelve (12) month period (hereinafter "the Probationary Period") shall be reduced to the capacity provided during the prior twelve (12) month period. If, during the Probationary Period, the QF provides the Contracted Capacity specified in this Contract, Company, within thirty (30) days following the end of the Probationary Period, shall reinstate the full capacity amount originally specified in this Contract. If, during the Probationary Period, the QF again fails to provide the Contracted Capacity specified in this Contract, Company may permanently reduce the capacity purchased from the QF for the remainder of the term of this Contract. Company may also require that the reduction in the capacity be subject to the refund provisions of Section 12 of this Contract.
14. **Scheduled Outages.** Scheduled outages of the QF shall be usefully coordinated with scheduled outages of Company's generating facilities.
15. **Power Supplied by Company.** Supplementary, Backup, Interruptible and/or Maintenance Power, as defined in 170 IAC 4-4.1-1, requested by Customer shall be supplied by Company only in accordance with the applicable rate schedules, "Standard Contract Rider No. 50—Parallel Operation For Qualifying Facility," this Contract and the applicable Service Schedules to be filed by Company with the Commission. Such rates shall be non-discriminatory and shall be based on the costs to provide such service.

Issued: October 2, 1997

Effective: October 2, 1997

Case No. 99-449
AttGen-01-016-D
Page 11 of 13

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION--
FOR QUALIFYING FACILITY**

**Contract for the Purchase of
Energy and Capacity from Qualifying Facility**

16. **Billing.** The meter measuring the supply of electric energy to Company's electric system shall be read by Company every _____, and Company shall provide those meter readings to Customer and render payment therefor within _____ after the meter reading.

Customer shall be billed for the electric service requirements used by Customer in accordance with Section 10 of this Contract.

17. **Insurance.** Customer shall procure and keep in force during all periods of parallel operation with Company's electric system, the following insurance, with insurance carriers acceptable to Company, with Company as a Named Insured as Company's interests may appear in this Contract, and in amounts not less than the following:

Coverage	Limits
Comprehensive General Liability	
Contractual Liability	(To be inserted depending upon the
Bodily Injury	nature and size of the QF.)
Property Damage	

Customer shall deliver a CERTIFICATE OF INSURANCE verifying the required coverage to:

PSI Energy, Inc.
Attention: District Manager

at least fifteen (15) days prior to any interconnection with Company's electric system by Customer.

18. **Release and Indemnification.** Each party shall release, indemnify and hold harmless the other party from and against all claims, liability, damages and expenses, including attorneys' fees, based on any injury to any person, including loss of life, or damage to any property, including loss of use thereof, arising out of, resulting from or connected with, or that may be alleged to have arisen out of, resulted from or connected with, an act or omission by such other party, its employees, agents, representatives, successors or assigns in the construction, ownership, operation or maintenance of such party's facilities used in connection with this Contract. Upon the written request of the party seeking relief under this Section 18, the other party shall defend any suit asserting a claim covered by this Section 13. If a party is required to bring an action to enforce its rights under this Section 18, either as a separate action or in connection with another action, and said rights are upheld, the party from whom the relief was sought shall reimburse the party seeking such relief for all expenses, including attorneys' fees, incurred in connection with such action.
19. **Term.** This Contract shall be in effect for an initial term of ____ years, beginning _____, 19____, and ending 19____, and thereafter shall continue in effect for succeeding like terms, unless and until terminated by written notice given by one party to the other party at least sixty (60) days prior to the initial date of expiration, or any succeeding expiration date, and stating an intention to terminate this Contract as of the applicable expiration date.

Issued: October 2, 1997

Effective: October 2, 1997

**STANDARD CONTRACT RIDER NO. 50
PARALLEL OPERATION--
FOR QUALIFYING FACILITY**

**Contract for the Purchase of
Energy and Capacity from Qualifying Facility**

20. **Termination of Any Applicable Existing Agreement.** From and after the date when service commences under this Contract, this Contract shall supersede any oral and/or written agreement between Company and Customer concerning the service covered by this Contract and any such agreement shall be deemed to be terminated as of the date service commences under this Contract.
21. **Force Majeure.** "Force Majeure" means any cause or event not reasonably within the control of the party claiming Force Majeure, including, but not limited to, the following: acts of God, strikes, lockouts, or other industrial disturbances; acts of public enemies; orders or permits or the absence of the necessary orders or permits of any kind which have been properly applied for from the government of the United States, the State of Indiana, any political subdivision or municipal subdivision or any of their departments, agencies or officials, or any civil or military authority; unavailability of a fuel or resource used in connection with the generation of electricity; extraordinary delay in transportation; unforeseen soil conditions; equipment, material, supplies, labor or machinery shortages; epidemics; landslides; lightning; earthquakes; fires; hurricanes; tornadoes; storms; floods; washouts; drought; arrest; war; civil disturbances; explosions; breakage or accident to machinery, transmission lines, pipes or canals; partial or entire failure of utilities; breach of contract by any supplier, contractor, subcontractor, laborer or material man; sabotage; injunction; blight; famine; blockade; or quarantine.
- If either party is rendered wholly or partly unable to perform its obligations because of Force Majeure, both parties shall be excused from whatever obligations are affected by the Force Majeure (other than the obligation to pay money) and shall not be liable or responsible for any delay in the performance of, or the inability to perform, any such obligations for so long as the Force Majeure continues. The party suffering an occurrence of Force Majeure shall, as soon as is reasonably possible after such occurrence, give the other party written notice describing the particulars of the occurrence and shall use its best efforts to remedy its inability to perform, provided, however, that the settlement of any strike, walkout, lockout or other labor dispute shall be entirely within the discretion of the party involved in such labor dispute.
22. **Invalid Legal Basis.** This Contract has been entered into by Company and Customer pursuant to the Commission's October 5, 1984 Order in Cause No. 37494 approving rules and regulations with respect to cogeneration and alternate energy production facilities, 170 IAC 4-4.1-1 et. seq., under Public Law 72-1982, IC 8-1-2.4-1 et. seq. In the event that any part of such Commission Order, such rules and regulations or such law is finally adjudged by a court of competent jurisdiction to be invalid, then either Company or Customer may, at its sole option, terminate this Contract at any time within one hundred eighty (180) days of the date such determination becomes final by giving sixty (60) days' written notice to the other party stating an intention to terminate this Contract at the expiration of such sixty (60) day period.
23. **Wheeling Service.** To the extent required by law, Company will make available wheeling service to Customer in accordance with the provisions of 170 IAC 4-4.1-6.

IN WITNESS WHEREOF, the parties have executed this Contract, effective as of the date first above written.

PSI ENERGY, INC.
"Company"

By: _____

"Customer"

By: _____

Issued: October 2, 1997

Effective: October 2, 1997

Avoided Cost Rates Used in DSM Screening for 1999 IRP

	\$/MWh
1999	30.7
2000	26.1
2001	25.0
2002	26.9
2003	28.2
2004	30.6
2005	32.0
2006	32.3
2007	31.9
2008	34.3
2009	34.7
2010	36.1
2011	35.5
2012	37.0
2013	38.6
2014	38.8
2015	37.5
2016	40.6
2017	41.6
2018	42.9
2019	43.9

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-017

REQUEST:

17. On page 8-28 of the IRP, reference is made to a 1998 Section 1605(b) report that details Cinergy's Global Climate Change efforts. Please supply a copy of this 1998 report and a copy of the 1999 report, if it is available.

RESPONSE:

Copies of the 1998 and 1999 Section 1605(b) reports are being provided. The 1998 Section 1605(b) report is for CO₂ reducing and offsetting activities which occurred in calendar year 1997, and the 1999 Section 1605(b) report is for CO₂ reducing and offsetting activities that occurred in calendar year 1998.

WITNESS RESPONSIBLE:

Diane Jenner

Schedule I. Entity Information and Certification

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.

1. Entity Information

Entity Name and Address

Cinergy Corp.
 139 E. Fourth Street, Rm 552-A P.O. Box: 960
 Cincinnati, OH 45201-0960

Contact:

Eric C. Kuhn
 Sr. Environmental Scientist
 Tel: (513) 287-4061 FAX:(513) 287-3499
 E-mail Address: ekuhn@cinergy.org

2. Type of Reporter

Corporation
 Publicly Traded CIN

3. Geographic Scope of Activities

U.S and Foreign Operations

Foreign countries in which activities are located:

018 Belize

4. SIC Code

49 Electric, Gas, and Sanitary Services

5. Reported Line Items by Schedule Section

Schedule II. Project-Level Emissions and Reductions

- 5 Section 1. Electricity Generation, Transmission, and Distribution
- 14 Section 3. Energy End Use
- 1 Section 4. Transportation and Off-Road Vehicles
- 2 Section 5. Waste Treatment and Disposal--Methane
- 1 Section 7. Oil and Natural Gas Systems and Coal Mining--Methane
- 6 Section 8. Carbon Sequestration
- 2 Section 10. Other Emission Reduction Projects

Schedule III. Entity-Level Emissions and Reductions

	Emissions		Reductions	
	Domestic	Foreign	Domestic	Foreign
Part I: Direct Emissions and Reductions				
Stationary Combustion:	1	0	1	0
Transportation Related:	1	0	1	0
Other Direct:	1	0	0	0
Part II: Indirect Emissions and Reductions				
From Power Transactions:	1	0	0	0
Other Indirect:	0	0	2	0
Part III: Sinks and Sequestration				
Sinks and Sequestration:			1	1
Part IV: Totals				
	0		0	

Schedule IV. Commitments to Reduce Greenhouse Gases

6. Confidentiality

This report contains confidential information.

7. Certification

I certify that the information reported on this form is accurate to the best of my knowledge and belief.

Certifying Official: Eric C. Kuhn

Environmental Services Dept.

Tel: (513) 287-4061 Date: 12/15/96

Supplemental Text

The starting dates for some of the projects reported in Schedule II, Section 3, precede the dates for which energy reductions are reported. This reflects projects with an initial sign-up and marketing period, preceding implementation of energy savings measures.

Schedule I. Entity Information and Certification

ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Reporting Year: 1997

Cinergy Corp.
Gibson Performance Maximization Program

Part I. General Project Information

- 1. Name of Entity: Cinergy Corp.
- 2. Name of Project: Gibson Performance Maximization Program
EIA Project ID: 101
- 3. Location:
U.S. Only
Facility Name and Address:
Gibson Generating Station
Rt. 1
Owensville, IN 47665
- 4. Date Project Became Operational:
Jan 1992
- 5. Reasons for Project:
Voluntary reduction
- 6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases

1/4/99
 11:03:19

Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Gibson Performance Maximization Program

II. Specific Project Information

1. **Project Type:**
Heat rate or other efficiency improvement
2. **Project Scale:**
Full-Scale/Commercial
3. **Total Fuel/Energy Consumption:**

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Bituminous	short tons	6723600	8520554	6777200	7265166

4. **Changes in Total Fuel/Energy Consumption Due to Project:**

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Bituminous	short tons	-16966	-20797	-18341	-20192

5. **Generating Units Included in this Project:**

Operator of Unit	Power Plant	Generating Unit	Capacity (MW)
Cinergy Corp.	Gibson	Unit 1	635.00
Cinergy Corp.	Gibson	Unit 2	635.00
Cinergy Corp.	Gibson	Unit 3	653.00
Cinergy Corp.	Gibson	Unit 4	628.00
Cinergy Corp.	Gibson	Unit 5	313.00

6. **Project Description:**

New data acquisition systems were installed in 1991 which monitor plant performance and network plant information systems for use by plant operating engineers. The programs allow plant operators to operate the plant at maximum efficiency, which results in a heat savings of 25 Btu per kilowatt-hour for each of the five units operated at the Gibson Generating Station.

Voluntary Reporting of Greenhouse Gases

11:03:20

Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Reporting Year: 1997

Entity ID: 190
 Preliminary

Cinergy Corp.
Gibson Performance Maximization Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1994			1995			1996			1997			Emissions Reductions in Future Years	
			Physical Quantity	Annual Average	Number of Years											
Carbon Dioxide	Direct	short tons	16540056	41736	20960563	51151	16671912	45119	17872308	49672	High	High	41,328.0	5		
Carbon Dioxide	Direct	short tons														

Voluntary Reporting of Greenhouse Gases

11:03:21

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 190

Status: Preliminary.

Reporting Year: 1997

Cinergy Corp. Gibson Performance Maximization Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This report contains information on:
Entire Project

5. Estimation Method:

The number of Btus per kilowatthour saved was monitored by plant personnel. The amount of coal used is metered by the station.

The amount of CO2 not emitted was estimated using the total gross annual generation (megawatts per year) for each unit at the Gibson Station and multiplying by the number of BTUs saved per megawatt hour, and then dividing that number by the number of BTUs in a pound of coal (25,000 Btus) and dividing that number by 2,000 pounds to determine the number of tons of coal that were not burned. The tons of coal not burned were then multiplied by the number of pounds of CO2 generated by a ton of coal from EIA's "Form EIA-1605" instruction manual Appendix B. "Fuel and Energy Source Codes and Emission Coefficients".

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 1. Electricity Generation, Transmission, and Distribution

Reporting Year: 1997

Entity ID: 190

Status: Preliminary.

Cinergy Corp.

Merger Dispatch Savings

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Merger Dispatch Savings
EIA Project ID: 1005
3. Location:
U.S. Only
Dispersed: Cinergy is able to reduce its CO2 emissions by dispatching its most efficient units first. System-wide benefits are achieved.

4. Date Project Became Operational:

Jan 1995

5. Reasons for Project:

Voluntary reduction

6. Participation in Voluntary Programs:

Climate Challenge

Other programs:

Program:

Sponsor:

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 1. Electricity Generation, Transmission, and Distribution

Reporting Year: 1997

Entity ID: 190

Status: Preliminary.

Cinergy Corp.

Merger Dispatch Savings

Part II. Specific Project Information

1. Project Type:

Dispatching changes only

2. Project Scale:

Full-Scale/Commercial

3. Total Fuel/Energy Consumption:

Fuel or Energy Type	Unit of Measure	Quantity	1995	1996	1997
Bituminous	short tons		23421690	22504927	23832377

4. Changes in Total Fuel/Energy Consumption Due to Project:

Fuel or Energy Type	Unit of Measure	Quantity	1995	1996	1997
Bituminous	short tons		-234217	-225049	-238324

6. Project Description:

Emission reductions are achieved through the economic dispatch of Cinergy's electric generating facilities. Prior to the merger of The Cincinnati Electric & Gas Company and PSI Energy, these generating facilities were dispatched according to the demands of each operating company. After the merger, the units from both operating companies are operated and dispatched as if they were owned by a single company. This method of operation and economic dispatch are estimated to provide a 1 percent efficiency gain in the operation of the system. The efficiency gain is realized because the more recently built generating units are the most efficient units and are the first dispatched to meet customer demands for electricity. Therefore, the most efficient generating units are operating more than the older less efficient units.

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

1/4/98
 11:03:30

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp. Merger Dispatch Savings

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1994			1995			1996			1997			Emission Reductions in Future Years		
			Physical Quantity	Annual Average	Number of Years	Accuracy	Annual Average	Number of Years									
CFC-11 (trichlorofluoromethane)	Direct	short tons			57617357			55362120			58627647						
	Reductions																
Carbon Dioxide	Direct	short tons			576174			553621			586277						
	Reductions																

Voluntary Reporting of Greenhouse Gases

11:03:31

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

Reporting Year: 1997

Entity ID: 190

Status: Preliminary.

Cinergy Corp.

Merger Dispatch Savings

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This report contains information on:
Entire Project

2. Reports to Other Agencies:

Government Body

Ohio Utilities Commission
Indiana Utilities Commission
Kentucky Utilities Commissio

Reference Number

Long Term Forecast
Long Term Forecast
Long Term Forecast

5. Estimation Method:

Emission reductions are achieved through the economic dispatch of Cinergy's electric generating facilities. Prior to the merger of The Cincinnati Electric & Gas Company and PSI Energy, these generating facilities were dispatched according to the demands of each operating company. After the merger, the units from both operating companies are operated and dispatched as if they were owned by a single company. This method of operation and economic dispatch are estimated to provide a 1 percent efficiency gain in the operation of the system. The efficiency gain is realized because the more recently built generating units are the most efficient units and are the first dispatched to meet customer demands for electricity. Therefore, the most efficient generating units are operating more than the older less efficient units.

Voluntary Reporting of Greenhouse Gases

1/4/99
11:03:36

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 190

Status: Preliminary

Reporting Year: 1997

Cinergy Corp.

Wabash River Unit 1 Repowering Project

Part I. General Project Information

Name of Entity: Cinergy Corp.

Name of Project: Wabash River Unit 1 Repowering Project

EIA Project ID: 1003

Location:

U.S. Only

Facility Name and Address:

Wabash River Generating Station
450 Wabash Rd.
W. Terre Haut, IN 47885-

4. Date Project Became Operational:

Jan 1995

5. Reasons for Project:

Voluntary reduction

6. Participation In Voluntary Programs:

Climate Challenge

Other programs:

Program:

Sponsor:

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 190
 Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Wabash River Unit 1 Repowering Project

II. Specific Project Information

1. **Project Type:**
Heat rate or other efficiency improvement
2. **Project Scale:**
Pilot/Demonstration
3. **Total Fuel/Energy Consumption:**

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Bituminous	short tons		6007	894746	425171
Natural Gas(Pipeline)	thousand standard cubic feet				143

4. **Changes in Total Fuel/Energy Consumption Due to Project:**

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Bituminous	short tons		-1201	-223437	-113225

Generating Units Included in this Project:

Operator of Unit	Power Plant	Generating Unit	Capacity (MW)
Cinergy Corp.	Wabash River	Unit No. 1	262.00

6. **Project Description:**

The Wabash River Coal Gasification Repowering Project is a joint venture of Cinergy Corp. and Destec Energy, Inc. of Houston, Texas. The \$400 million cost of the project is shared by the U.S. Department of Energy, Destec, and Cinergy. The Coal Gasification Project will take high sulfur coal, gasify the coal under high pressure and temperature, remove the sulfur from the syngas and combust the syngas in a high efficiency combustion turbine to generate electricity. The waste heat from the gasification process and combustion turbine will be converted to steam energy and sent to repower the #1 steam turbine in the Wabash River Station where it will be used to generate additional electricity.

The project will produce 262 megawatts net of electricity. The project will reduce approximately 90% of the total emissions while increasing the power generation by over 150% as compared to the unit before repowering. This represents a 20% improved heat rate compared to the previous heat rate of unit 1.

1/4/99
 11:03:39

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Reporting Year: 1997

Entity ID: 190
 Preliminary

Cinergy Corp.
Wabash River Unit 1 Repowering Project

Part III. Greenhouse Gas Emissions and Reductions

Emissions Reductions	Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emissions/Reductions in Future Years
				1994	1995	1996	1997		
Carbon Dioxide		Direct	short tons		14783	2201908	1063562	High	
Carbon Dioxide		Direct	short tons		2956	549863	278639	High	

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.

Wabash River Unit 1 Repowering Project

Part IV. Project Evaluation

3. Multiple Reporting:

1. Reference Case:
Modified - Other (See Estimation Method)

This report contains information on:
Entire Project

5. Estimation Method:

The number of Btu per kilowatt-hour saved was monitored by plant personnel. The amount of coal used is metered by the station. The project was in its shakedown period during 1995 and production was limited.

The amount of CO2 was estimated using the total number of tons of coal processed by the unit. It was assumed that the the project's heat rate was 20% better than the old unit #1. During 1996 the operation of the new facility will be monitored and the total megawatts generated will be compared to the heat input and compared to the heat input and electric generation of the former unit #1.

Voluntary Reporting of Greenhouse Gases

1/4/99
11:03:44

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 190

Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.

Cayuga Heat Rate Improvements

Part I. General Project Information

1. Name of Entity: Cinergy Corp.

2. Name of Project: Cayuga Heat Rate Improvements

EIA Project ID: 102

3. Location:

U.S. Only

Facility Name and Address:

Cayuga Generating Station
State Route 63
Cayuga, IN 47928-

4. Date Project Became Operational:

Jan 1992

5. Reasons for Project:

Voluntary reduction

6. Participation In Voluntary Programs:

Climate Challenge

Other programs:

Program:

Sponsor:

Voluntary Reporting of Greenhouse Gases

1/4/99
 11:03:46

Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Reporting Year: 1997

Entity ID: 190
 Status: Preliminary.

Cinergy Corp.
Cayuga Heat Rate Improvements

II. Specific Project Information

1. Project Type:
Heat rate or other efficiency improvement
2. Project Scale:
Full-Scale/Commercial
3. Total Fuel/Energy Consumption:

Fuel or Energy Type	Unit of Measure	Quantity		
		1994	1995	1996
Bituminous	short tons	2666600	2800000	2378600
				3057712

4. Changes in Total Fuel/Energy Consumption Due to Project:

Fuel or Energy Type	Unit of Measure	Quantity		
		1994	1995	1996
Bituminous	short tons	-10781	-12872	-11312
				-19026

5. Generating Units Included in this Project:

Operator of Unit	Power Plant	Generating Unit	Capacity (MW)
Cinergy Corp.	Cayuga	Unit 1	531.00
Cinergy Corp.	Cayuga	Unit 2	531.00

6. Project Description:

New data acquisition systems were installed in 1991 which monitor plant performance maximization and network plant information systems for use by plant operating engineers. The software programs allow plant operators to operate the plant at maximum efficiency which results in a Btu savings of 25 Btu per kilowatt-hour for each of the two units operated at the Cayuga Generating Station.

In addition to the above improvements, the forced draft fans were redesigned to be more efficient following the failure of the FD fan wheel in 1991. The new design was installed on all four fans at the plant. The more efficient FD fan uses less power resulting in a 40 Btu per kilowatt-hour heat rate improvement in each of the two Cayuga units.

1/4/99
 11:03:47

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Cayuga Heat Rate Improvements

Part III. Greenhouse Gas Emissions and Reductions

Emissions	Gas	Type	Unit of Measure	1994	1995	1996	1997	Accuracy	Emissions/Reductions	
				Physical Quantity	Physical Quantity	Physical Quantity	Physical Quantity		Annual Average	Number of Years
Carbon Dioxide		Direct	short tons	6667240	6890607	5853571	7524818	High		
Carbon Dioxide		Direct	short tons	26527	31665	27928	46804	High	40,894.0	5

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.
Cayuga Heat Rate Improvements

Part IV. Project Evaluation

Reference Case:

3. Multiple Reporting:

Modified - Other (See Estimation Method)

This report contains information on:
Entire Project

5. Estimation Method:

The number of Btus per kilowatt-hour saved was monitored by plant personnel. The amount of coal used is metered by the station.

The amount of CO2 not emitted was estimated using the total gross annual generation (megawatts per year) for each unit at the Gibson Station and multiplying by the number of BTUs saved per megawatt hour, and then dividing that number by the number of BTUs in a pound of coal (65,000 Btus) and dividing that number by 2,000 pounds to determine the number of tons of coal that were not burned. The tons of coal not burned were then multiplied by the number of pounds of CO2 generated by a ton of coal from EIA's "Form EIA-1605" instruction manual Appendix B. "Fuel and Energy Source Codes and Emission Coefficients".

Voluntary Reporting of Greenhouse Gases

1/4/99
11:03:52

Schedule II. Project-Level Emissions and Reductions

Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 190

Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.

Wabash River Heat Rate Improvement

Part I. General Project Information

Name of Entity: Cinergy Corp.

4. Date Project Became Operational:

Jan 1992

2. Name of Project: Wabash River Heat Rate Improvement

5. Reasons for Project:

EIA Project ID: 103

Voluntary reduction

3. Location:

U.S. Only

6. Participation In Voluntary Programs:

Facility Name and Address:

Wabash River Generating Station

450 Wabash Road

West Terre Haute, IN 47885-

Climate Challenge

Other programs:

Program:

Sponsor:

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Wabash River Heat Rate Improvement

II. Specific Project Information

1. **Project Type:**
Heat rate or other efficiency improvement
2. **Project Scale:**
Full-Scale/Commercial
3. **Total Fuel/Energy Consumption:**

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Bituminous	short tons	823200	561861	749700	672142

4. **Changes in Total Fuel/Energy Consumption Due to Project:**

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Bituminous	short tons	-2704	-1846	-3408	-3055

5. **Generating Units Included in this Project:**

Operator of Unit	Power Plant	Generating Unit	Capacity (MW)
Cinergy Corp.	Wabash River	Unit 6	387.00

6. **Project Description:**

High efficiency turbine blades were installed on the low pressure turbine for Unit 6 at the Wabash River Generating Station in 1993 which resulted in a heat rate improvement of 48 Btu per kilowatthour.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 190

Reporting Year: 1997

Preliminary

Cinergy Corp.

Wabash River Heat Rate Improvement

Part III. Greenhouse Gas Emissions and Reductions

Emissions	Gas	Type	Unit of Measure	1994	1995	1996	1997	Accuracy	Emission Reductions (in future years)
				Physical Quantity	Physical Quantity	Physical Quantity	Physical Quantity		
Carbon Dioxide		Direct	short tons	2025072	1382178	1844262	1653469	High	
Carbon Dioxide		Direct	short tons	6652	4541	8384	7516	High	6,587.0
									10

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 1. Electricity Generation, Transmission, and Distribution

1/4/99
11:03:56

Entity ID: 190

Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.

Wabash River Heat Rate Improvement

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This report contains information on:

Entire Project

5. Estimation Method:

The number of Btu per kilowatthour saved was monitored by plant personnel. The amount of coal used is metered by the station.

The amount of CO2 not emitted was estimated using the total gross annual generation (megawatts per year) for each unit at the Gibson Station and multiplying by the number of BRUs saved per megawatt hour, and then dividing that number by the number of BRUs in a pound of coal (48,000 Btus) and dividing that number by 2,000 pounds to determine the number of tons of coal that were not burned. The tons of coal not burned were then multiplied by the number of pounds of CO2 generated by a ton of coal from EIA's "Form EIA-1605" instruction manual Appendix B. "Fuel and Energy Source Codes and Emission Coefficients".

Voluntary Reporting of Greenhouse Gases

1/4/99
11:04:02

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.

Industrial Efficiency Improvement & Energy Awareness Program

Part I. General Project Information

- 1. Name of Entity: Cinergy Corp.
- 2. Name of Project: Industrial Efficiency Improvement & Energy Awareness Program
EIA Project ID: 307
- 3. Location:
U.S. Only: Central and Southern Indiana
Dispersed: Central and Southern Indiana
- 4. Date Project Became Operational: Jan 1992
- 5. Reasons for Project: Voluntary reduction
- 6. Participation in Voluntary Programs: Climate Challenge

Voluntary Reporting of Greenhouse Gases

1/4/99
 11:04:03

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Reporting Year: 1997

Cinergy Corp.

Industrial Efficiency Improvement & Energy Awareness Program

Part II. Specific Project Information

1. Project Type:

Equipment and appliances improvement or replacement
 Lighting and lighting control
 Heating, ventilation, and air conditioning
 Motor and motor drive

2. Load Shape Effects:

Energy efficiency

3. Sector(s) of Energy User(s) Affected by Project

Industrial

4. Project Scale:

Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Electricity	megawatt hours	-103115	-335277	-335277	-335277

6. Project Description:

Industrial Efficiency Improvement & Energy Awareness Programs
 For medium and large industrial customers, these programs provide customized energy studies and tailored incentives to encourage installation of efficient equipment. For small industrial customers, a program is designed to stimulate the adoption of efficiency improvement technologies and techniques by providing information and education on measures such as motor drives, lighting, HVAC and process-system improvement.

Voluntary Reporting of Greenhouse Gases

1/4/99
 11:04:04

Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Industrial Efficiency Improvement & Energy Awareness Program

Part III. Greenhouse Gas Emissions and Reductions

Reductions	Gas	Type	Unit of Measure	1994-1997					Accuracy	Emissions/Reductions	
				Physical Quantity		Annual Average	Number of Years				
Carbon Dioxide		Direct	Short tons	111983	364111	364111	364111	364111	High	621,400.0	20

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Industrial Efficiency Improvement & Energy Awareness Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

This report contains information on:
Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MMh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Thermal Energy (Cool) Storage Program

Part I. General Project Information

Name of Entity: Cinergy Corp.

4. Date Project Became Operational:

Jan 1994

2. Name of Project: Thermal Energy (Cool) Storage Program
EIA Project ID: 312

5. Reasons for Project:

Voluntary reduction

3. Location:

U.S. Only

Dispersed: Southwest Ohio

6. Participation In Voluntary Programs:

Climate Challenge

Voluntary Reporting of Greenhouse Gases

1/4/99
 11:04:12

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

**Cinergy Corp.
 Thermal Energy (Cool) Storage Program**

Part II. Specific Project Information

Project Type:
 Load control
 Heating, ventilation, and air conditioning

2. Load Shape Effects:
 Load shifting

3. Sector(s) of Energy User(s) Affected by Project
 Commercial
 Industrial

4. Project Scale:
 Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Electricity	megawatt hours	-2660	-1823	-2310	-17453

Voluntary Reporting of Greenhouse Gases

1/4/99
11:04:12

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Thermal Energy (Cool) Storage Program

6. Project Description:

Thermal Energy (Cool) Storage Program

Thermal energy storage, or TES, off-peak air conditioning is designed for the space cooling needs of the commercial and industrial market. Thermal energy storage relies on a storage medium to store cooling capacity produced during utility-defined off-peak hours. This stored cooling capacity is then used to meet the facility's cooling needs during utility-defined on-peak hours.

The target market for this program includes schools, churches, and commercial or industrial office buildings. This includes both the new construction and retrofit of buildings that have relatively large cooling needs and have operating hours that are conducive to ice making during off-peak hours. Industrial process applications, represent additional market potential for TES system.

The Thermal Energy Storage Program is designed to stimulate the market and help facility owners over the obstacles typically associated with the technology:

- 1) first cost premium over conventional HVAC systems
- 2) perception that technology is new and/or complex
- 3) proven reliability
- 4) equipment malfunction consequences.

The features of the program include: 1) financial incentives to help offset a portion of the initial investment of economically viable projects and to compensate engineering design firms for additional investigative and design time; 2) Time-Of-Use Rates/Load Management Rider which offers a fifteen hour off-peak window for load management purposes; 3) Thermal Energy Storage Rider (Ride TES) to offer participating customers protection from higher demand and ratchet charges which result from operational errors or equipment failures; 4) TES Operators' Group to provide support and peer consultation to facilities managers, engineers or technicians responsible for operating thermal storage systems; and 5) utility technical assistance in application assessments to ensure proper operation and understanding of the thermal storage equipment.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Thermal Energy (Cool) Storage Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Physical Quantity					Accuracy	Emission Reductions	
			1994	1995	1996	1997	Annual Average		Number of Years	
Carbon Dioxide	Direct	short tons	2889	1980	2509	18954	High	12,000.0	20	

Voluntary Reporting of Greenhouse Gases

1/4/99
11:04:14

Schedule II. Project-Level Emissions and Reductions Section 3. Energy End Use

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp. Thermal Energy (Cool) Storage Program

Part IV. Project Evaluation

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
Cincinnati Gas & Electric Co., a Cinergy company

This report contains information on:
Entire Project

2. Reports to Other Agencies:

Government Body	Reference Number
Public Utility Commission of Ohio	IRP

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. *Adjusted Electricity Emission Factors by State* for Indiana (1.086).

is recognized that this program is a load shifting program and some direct emissions occur as a result of the load shifting from on-peak to off-peak. These emissions are not reflected in this Form because the CO2 reductions reported herein are due to efficiency gains in generation due to the load shifting and reflect emission reductions due to fuel savings resulting from the gained efficiencies.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Commercial/Industrial Lighting Rebate Program

Part I. General Project Information

Name of Entity: Cinergy Corp.

4. Date Project Became Operational:

Jan 1994

2. Name of Project: Commercial/Industrial Lighting Rebate Program
EIA Project ID: 311

5. Reasons for Project:
Voluntary reduction

3. Location:

U.S. Only
Dispersed: Southwestern Ohio

6. Participation In Voluntary Programs:

Green Lights Program
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Commercial/Industrial Lighting Rebate Program

Part II. Specific Project Information

Project Type:

Lighting and lighting control

2. Load Shape Effects:

Energy efficiency

3. Sector(s) of Energy User(s) Affected by Project

Commercial
 Industrial

4. Project Scale:

Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Electricity	Unit of Measure	Quantity			
		1994	1995	1996	1997
	megawatt hours	-45340	-61422	-82297	-90397

Project Description:

Commercial/Industrial Lighting Rebate Program

The C/I Lighting Rebate Program provides incentives for the installation of high efficiency lighting systems. The program targets commercial buildings or office spaces with opportunities for efficient lighting retrofits, specifically, the replacement of standard fluorescent lighting systems with T8 fluorescent systems. The program has been expanded to include the replacement of exit signs with either compact fluorescent or LED units, and the installation of occupancy sensors. In addition to rebates, the program offers pre- and post-installation reviews, customer and trade ally educational seminars, and technical assistance.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Commercial/Industrial Lighting Rebate Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Emissions/Reductions in Future Years					Accuracy	Annual Emissions Average (in thousands of tons)
			1994 Physical Quantity	1995 Physical Quantity	1996 Physical Quantity	1997 Physical Quantity	1998 Physical Quantity		
Carbon Dioxide	Direct	short tons	43345	58719	78676	81822	High	381,100.0	20

Voluntary Reporting of Greenhouse Gases

1/4/99
11:04:22

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entry ID: 190
Status: Preliminary.

Reporting Year: 1997

**Cinergy Corp.
Commercial/Industrial Lighting Rebate Program**

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-Sponsored program, sponsored by:
Cincinnati Gas & Electric Co., a Cinergy company

2. Reports to Other Agencies:

Government Body
Public Utility Commission of Ohio
Environmental Protection Agency

Reference Number
IRP

This report contains information on:
Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (Mwh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. Adjusted Electricity Emission Factors by State" for Indiana (1.086).

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.
Green Lights Program

Part I. General Project Information

Name of Entity: Cinergy Corp.

4. Date Project Became Operational:
Jan 1992

2. Name of Project: Green Lights Program
EIA Project ID: 310

5. Reasons for Project:
Voluntary reduction

3. Location:
U.S. Only
Dispersed: Southwestern Ohio & Central and Southern Indiana

6. Participation In Voluntary Programs:
Green Lights Program
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Green Lights Program

Part II. Specific Project Information

Project Type:
 Lighting and lighting control

2. Load Shape Effects:
 Energy efficiency

3. Sector(s) of Energy User(s) Affected by Project
 Commercial
 Industrial

4. Project Scale:
 Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Electricity	megawatt hours	-3108	-3108	-3108	-3108

Project Description:
 Green Lights Program

The Green Lights Memorandum of Understanding is a voluntary agreement between PSI, CG&E, and the U.S. Environmental Protection Agency in an effort to promote and develop energy efficient lighting, PSI and CG&E desire to convert the lighting in their facilities to energy efficient lighting while maintaining quality and cost effectiveness.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Green Lights Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emission Reductions In Future Years	
			1994	1995	1996	1997		Annual Average	Number of Years
Carbon Dioxide	Direct	short tons	3375	3375	3375	3375	High	5,000.0	20

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.
Green Lights Program

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy & Cincinnati Gas & Electric Co.

2. Reports to Other Agencies:

This report contains information on:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP
Public Utility Commission of Ohio	IEP
Environmental Protection Agency	

Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

kWh hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. Adjusted Electricity Emission Factors by State" for Indiana (1.086).

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Status: Preliminary

Reporting Year: 1997

Cinergy Corp. Residential Wrap-Up Program

Part I. General Project Information

- 1. Name of Entity:** Cinergy Corp.
- 2. Name of Project:** Residential Wrap-Up Program
EIA Project ID: 301
- 3. Location:**
U.S. Only
Dispersed: Central and Southern Indiana
- 4. Date Project Became Operational:**
Jan 1991
- 5. Reasons for Project:**
Voluntary reduction
- 6. Participation In Voluntary Programs:**
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Status: Preliminary
 Reporting Year: 1997

Cinergy Corp.
Residential Wrap-Up Program

Part II. Specific Project Information

- Project Type:**
 Equipment and appliances improvement or replacement
 Lighting and lighting control
- 2. Load Shape Effects:**
 Energy efficiency
- 3. Sector(s) of Energy User(s) Affected by Project**
 Residential
- 4. Project Scale:**
 Full-Scale/Commercial
- 5. Net Change in Energy/Fuel Consumption:**

Fuel or Energy Type	Unit of Measure	Quantity				
		1994	1995	1986	1987	1997
Electricity	megawatt hours	-8049	-8204	-8204	-8204	-8204

Project Description:
 Residential Wrap-Up Program

This program targets customers with electric water heaters by promoting the installation of energy saving devices such as faucet aerators, shower heads, water heater jackets and compact fluorescent light bulbs. PSI Energy, a Cinergy company, employs a contractor to wrap the customer's water heater, wrap the pipes near the water heater tank with foam insulation and install energy efficient shower heads and faucet aerators. Customers pay \$20 to participate in the program. At the time the contractor is at the home, the customer has the option of purchasing compact fluorescent light bulbs at a reduced rate of \$5 each, with a limit of 15.

This project was discontinued in 1995 due to high costs.

Voluntary Reporting of Greenhouse Gases

1/4/99
 11:04:37

Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Residential Wrap-Up Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Physical Quantity					Accuracy	Emissions and Reductions	
			1994	1995	1996	1997	Annual Average		Number of Years	
Carbon Dioxide	Direct	short tons	8741	8910	8910	8910	8910	High	13,700.0	20

Voluntary Reporting of Greenhouse Gases

1/4/99
11:04:38

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.
Residential Wrap-Up Program

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

This report contains information on:
Entire Project

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants' facilities; makes engineering estimates of the amount of energy conserved by a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

megawatt hours (Mwh) were converted to tons of CO2 by using the conversion factor in EPA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Residential Seal-Up & Low-Income Efficiency Program

Part I. General Project Information

- 1. Name of Entity: Cinergy Corp.
- 2. Name of Project: Residential Seal-Up & Low-Income Efficiency Program
EIA Project ID: 304
- 3. Location:
U.S. Only
Dispersed: Central and Southern Indiana
- 4. Date Project Became Operational:
Jan 1991
- 5. Reasons for Project:
Voluntary reduction
- 6. Participation In Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Residential Seal-Up & Low-Income Efficiency Program

Part II. Specific Project Information

Project Type:

Lighting and lighting control
 Heating, ventilation, and air conditioning
 Building shell improvement

2. Load Shape Effects:

Energy efficiency

3. Sector(s) of Energy User(s) Affected by Project

Residential

4. Project Scale:

Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Electricity	megawatt hours	-19154	-20475	-22169	-22170

Voluntary Reporting of Greenhouse Gases

1/4/99
11:04:44

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.

Residential Seal-Up & Low-Income Efficiency Program

6. Project Description:

Residential Seal-Up Program

This program targets customers with both electric water heating and space heating by promoting the installation of energy saving devices such as faucet aerators, shower heads, water heater jackets and compact fluorescent light bulbs. Customer homes are also tested for infiltration, weatherized with caulking, outlet gaskets, and door sweeps; and ductwork is sealed with mastic when accessible. PSI, a Cinergy Company, employs a contractor to install the energy saving devices. Customers pay \$30 to participate in the program. At the time the contractor is at the home, the customer has the option of purchasing compact fluorescent light bulbs at a reduced rate of \$5 each, with a limit of 15.

This program was discontinued in 1995.

Residential Low-Income Efficiency Program

This program provides the installation of energy saving devices to PSI, a Cinergy Company, residential customers who qualify for weatherization or heating bill assistance as part of state or federal programs. Program measures include faucet aerators, shower heads, water heater jackets and up to three compact fluorescent light bulbs. Customers with electric space heating also receive caulking, weather-stripping and duct mastic to reduce infiltration in the home. There is no charge to the customer for this program.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Residential Seal-Up & Low-Income Efficiency Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emissions/Reductions in Future Years
			1994	1995	1996	1997		
Carbon Dioxide	Direct	short tons	17543	22236	24076	24077	High	46,700.0 20

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Residential Seal-Up & Low-Income Efficiency Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-Sponsored program, sponsored by:
PSI Energy, a Cinergy company

This report contains information on:
Entire Project

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EPA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This project was discontinued in 1996, however, it is assumed that the measures that were installed at that time are still in place and achieving the same energy savings as reported in 1996.

Voluntary Reporting of Greenhouse Gases

1/4/99
11:04:52

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Status: Preliminary

Reporting Year: 1997

Cinergy Corp.

Commercial/Industrial High Efficiency Motors Plan

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Commercial/Industrial High Efficiency Motors Plan
EIA Project ID: 313
3. Location:
U.S. Only
Dispersed: Southwest Ohio
4. Date Project Became Operational:
Jan 1994
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.

Commercial/Industrial High Efficiency Motors Plan

Part II. Specific Project Information

Project Type:

Motor and motor drive

2. Load Shape Effects:

Energy efficiency

3. Sector(s) of Energy User(s) Affected by Project

Commercial
 Industrial

4. Project Scale:

Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Electricity	megawatt hours	-240	-1683	-1301	-2615

Project Description:

Commercial/Industrial High Efficiency Motors Plan

CG&E, a Cinergy company, offers financial incentives to encourage the use of high efficiency polyphase induction motors. The program targets commercial and industrial facilities with opportunities for motor retrofit, motor replacement, and new motor installation. Specifically, the program will target situations where a new high efficiency motor: 1) replaces a failed standard efficiency motor, 2) replaces an older existing standard efficiency motor, or 3) is used for a new application.

In addition to financial incentives, the program offers post-installation inspections, monitoring of installation to determine hours of use, percent load and energy savings, customer and trade ally educational seminars, and technical assistance.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Commercial/Industrial High Efficiency Motors Plan

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emissions Reductions	
			1994	1995	1996	1997		In Future Years	Annual Average
Carbon Dioxide	Direct	short tons	229	1609	1244	2840	High	900.0	20

Voluntary Reporting of Greenhouse Gases

1/4/99
11:04:55

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Status: Preliminary.

Reporting Year: 1997

Cinergy Corp. Commercial/Industrial High Efficiency Motors Plan

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
Cincinnati Gas & Electric, a Cinergy company

2. Reports to Other Agencies:

Government Body	Reference Number
Public Utility Commission of Ohio	IRP

This report contains information on:
Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C.
"Adjusted Electricity Emission Factors by State" for Indiana (1.086).

Voluntary Reporting of Greenhouse Gases

1/4/99
11:05:00

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Commercial Audit/Incentive Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Commercial Audit/Incentive Program
EIA Project ID: 305
3. Location:
U.S. Only
Dispersed: Central and Southern Indiana
4. Date Project Became Operational:
Jan 1991
5. Reasons for Project:
Voluntary reduction
6. Participation In Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases

1/4/99
 11:05:01

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.

Commercial Audit/Incentive Program

Part II. Specific Project Information

Object Type:

Lighting and lighting control
 Heating, ventilation, and air conditioning
 Motor and motor drive

2. Load Shape Effects:

Energy efficiency

3. Sector(s) of Energy User(s) Affected by Project

Commercial

4. Project Scale:

Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Electricity	megawatt hours	-118106	-130490	-5442	-7513

6. Project Description:

Commercial Audit/Incentive Program

This program provides a comprehensive energy audit for qualified facilities (>100kW) as well as optional sales representative/vendor audits. Based on audit results, a sales representative can offer customized incentives to help offset the cost of implementing energy saving measures. Among the niche programs included in this program are the Large Customer/National Account and the New Equipment Programs. The New Equipment Program offers prescriptive incentives for high efficiency lighting, HVAC, and motor applications for both the replacement and new construction markets.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Commercial Audit/Incentive Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emission Reductions	
			1994	1995	1996	1997		Annual Average	Number of Years
Carbon Dioxide	Direct	short tons	112909	124748	5183	8159	High	231,800.0	20

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Commercial Audit/Incentive Program

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

This report contains information on:
Entire Project

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Commercial/Industrial Adjustable Speed Drive Plan

Part I. General Project Information

- 1. Name of Entity: Cinergy Corp.
- 2. Name of Project: Commercial/Industrial Adjustable Speed Drive Plan
EIA Project ID: 314
- 3. Location:
U.S. Only
Dispersed: Southwest Ohio
- 4. Date Project Became Operational:
Jan 1994
- 5. Reasons for Project:
Voluntary reduction
- 6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Commercial/Industrial Adjustable Speed Drive Plan

Part II. Specific Project Information

- 1. Project Type:
Motor and motor drive
- 2. Load Shape Effects:
Energy efficiency
- 3. Sector(s) of Energy User(s) Affected by Project
Commercial
Industrial
- 4. Project Scale:
Full-Scale/Commercial
- 5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Electricity	megawatt hours	-6080	-11285	-11688	-11988

Project Description:
 Commercial/Industrial Adjustable Speed Drive Plan
 CG&E, a Cinergy Company, offers financial incentives to encourage the use of adjustable speed drives (ASDs). ASDS conserve energy by controlling the speed of AC induction motors to match the varying load of the process or system. The program targets new and existing commercial and industrial facilities with opportunities for AC induction motor control. Usually this involves situations where electronic ASDS eliminate the need for mechanical or hydraulic drives (clutches, gears, pulleys, valves, dampers, vanes).
 In addition to financial incentives, the program offers customers and trade ally educational seminars, technical assistance, monitoring of energy savings, and power quality diagnosis if required.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Commercial/Industrial Adjustable Speed Drive Plan

Part III. Greenhouse Gas Emissions and Reductions

Reductions	Gas	Type	Unit of Measure	1994	1995	1996	1997	Accuracy	Emission Reductions in Future Years
				Physical Quantity	Physical Quantity	Physical Quantity	Physical Quantity		
Carbon Dioxide		Direct	short tons	5812	10788	12256	12256	High	20,300.0 20

Voluntary Reporting of Greenhouse Gases

1/4/99
11:05:12

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp. Commercial/Industrial Adjustable Speed Drive Plan

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
Cincinnati Gas & Electric, a Cinergy company

2. Reports to Other Agencies:

Government Body	Reference Number
Public Utility Commission of Ohio	IRP

This report contains information on:
Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086). This program was discontinued in 1996. It is assumed that the changes which were in place at that time continue to deliver energy savings.

Voluntary Reporting of Greenhouse Gases

1/4/99
11:05:16

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Commercial Direct Lighting

Part I. General Project Information

1. Name of Entity: Cinergy Corp.

2. Name of Project: Commercial Direct Lighting
EIA Project ID: 306

3. Location:
U.S. Only
Dispersed: Central and Southern Indiana

4. Date Project Became Operational:
Jan 1992

5. Reasons for Project:
Voluntary reduction

6. Participation In Voluntary Programs:
Climate Challenge
Green Lights Program

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Commercial Direct Lighting

Part II. Specific Project Information

Project Type:
 Lighting and lighting control

2. Load Shape Effects:
 Energy efficiency

3. Sector(s) of Energy User(s) Affected by Project
 Commercial
 Industrial

4. Project Scale:
 Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel/ Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Electricity	megawatt hours	-13795	-22297	-22297	-22297

Project Description:
 Commercial Direct Lighting Installation Program

This program encourages small commercial customers using less than 15,000 kWh annually to make energy-efficient lighting improvements. The program promotes fluorescent tubes and ballasts (in combination, not individually), screw-in and hard-wired compact fluorescent lamps, wall-mounted occupancy sensors and exit light replacement kits.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Commercial Direct Lighting

Part III. Greenhouse Gas Emissions and Reductions

Reductions	Gas	Type	Unit of Measure	1994	1995	1996	1997	Accuracy	Emissions/Reductions	
				Physical Quantity	Physical Quantity	Physical Quantity	Physical Quantity		In Future Years	Annual Number of Years
Carbon Dioxide		Direct	short tons	13188	24215	24215	24215	High	74,700.0	20

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Commercial Direct Lighting

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

This report contains information on:
Entire Project

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP
Environmental Protection Agency	

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. Adjusted Electricity Emission Factors by State* for Indiana (1.086).

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.

Commercial/Industrial Peak Reduction Program

Part I. General Project Information

- 1. Name of Entity: Cinergy Corp.
- 2. Name of Project: Commercial/Industrial Peak Reduction Program
EIA Project ID: 308
- 3. Location:
U.S. Only
Dispersed: Central and Southern Indiana
- 4. Date Project Became Operational:
Jan 1992
- 5. Reasons for Project:
Voluntary reduction
- 6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Status: Preliminary

Reporting Year: 1997

Cinergy Corp.

Commercial/Industrial Peak Reduction Program

Part II. Specific Project Information

Project Type:

Load control

2. Load Shape Effects:

Peak clipping

3. Sector(s) of Energy User(s) Affected by Project

Commercial

Industrial

4. Project Scale:

Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity				
		1994	1995	1996	1997	
Electricity	megawatt hours	-394	-394	-394	-394	-394

Project Description:

Commercial/Industrial Peak Reduction Program

This program offers credits to commercial or industrial customers who volunteer to reduce their peak-period usage on request from PSI. The amount of the reduction is agreed upon beforehand based on a coincident peak analysis. Upon notification from PSI, demand is reduced by either starting up on-site generators or turning off large loads or groups of similar loads. Customers have the option of summer or winter interruptions. Customers may also select day before notification or thirty minute notification from PSI. Credits vary depending upon the option selected.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Commercial/Industrial Peak Reduction Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Emissions					Accuracy	Emissions Reductions (in Future Years)
			1994 Physical Quantity	1995 Physical Quantity	1996 Physical Quantity	1997 Physical Quantity	Annual Number Average of Years		
Carbon Dioxide	Direct	short tons	428	428	428	428	High	5,600.0 20	

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190

Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Commercial/Industrial Peak Reduction Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

This report contains information on:
Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

gawatt hours (MMwh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

s program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases

1/4/99
11:05:33

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Status: Preliminary.

Reporting Year: 1997

Cinergy Corp. Residential Energy Efficient Lighting Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Residential Energy Efficient Lighting Program
EIA Project ID: 302
3. Location:
U.S. Only
Dispersed: Central and Southern Indiana
4. Date Project Became Operational:
Jan 1991
5. Reasons for Project:
Voluntary reduction
6. Participation In Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190

Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Residential Energy Efficient Lighting Program

Part II. Specific Project Information

Project Type:

Lighting and lighting control

2. Load Shape Effects:

Energy efficiency

3. Sector(s) of Energy User(s) Affected by Project

Residential

4. Project Scale:

Full-Scale/Commercial

5. Net Change In Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity			
		1984	1985	1996	1997
Electricity	megawatt hours	-4512	-4955	-4955	-4955

6. Project Description:

Residential Energy Efficient Lighting Program

This program provides high efficiency lighting opportunities to residential customers at a reduced cost through the use of various product/incentive delivery mechanisms. Generally, the program has been implemented through promotional campaigns, each with a limited life and tailored product/incentive delivery mechanisms, such as mail-in rebates, store coupons, generic coupons, and an 800 number. The objective is to provide energy saving opportunities to residential customers who are unable to participate in other programs and to also improve their awareness in energy efficient lighting.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entry ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Residential Energy Efficient Lighting Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emission Reductions (Tribute Years)
			1991	1995	1996	1997		
Carbon Dioxide	Direct	short tons	4900	5381	5381	5381	High	1,270.0 20

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.
Residential Energy Efficient Lighting Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

2. Reports to Other Agencies:

This report contains information on:
Entire Project

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

egawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

s program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190

Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Planergy

Part I. General Project Information

- 1. Name of Entity:** Cinergy Corp.
- 2. Name of Project:** Planergy
EIA Project ID: 309
- 3. Location:**
U.S. Only Central and Southern Indiana
Dispersed: Central and Southern Indiana
- 4. Date Project Became Operational:**
Jan 1992
- 5. Reasons for Project:**
Voluntary reduction
- 6. Participation In Voluntary Programs:**
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

1/4/99
11:05:43

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Planergy

Part II. Specific Project Information

Project Type:
Load control

2. Load Shape Effects:
Energy efficiency
Peak clipping

3. Sector(s) of Energy User(s) Affected by Project
Industrial

4. Project Scale:
Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Electricity	megawatt hours	-206	0	0	0

Project Description:
Planergy Program

As a result of PSI's DSM bidding program in 1989, a 10 year contract was signed between PSI and Planergy, Inc. of Austin, Texas that creates the "Water-Link" cooperative. This is a load shedding cooperative among water and waste water treatment facilities in Central and Southern Indiana. The original contract required Planergy to provide 5,000 kilowatts of demand starting in June 1993. The participants are paid \$4 per kilowatt reduction monthly from June through September and \$2.50 per kilowatt reduction in December, January, and February. These credits are scheduled to increase in 1998 to \$5.50 during the summer and \$3.00 during the winter.

Voluntary Reporting of Greenhouse Gases

1/4/99
 11:05:44

Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
 Planergy

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emission Reductions in Future Years	
			1994	1995	1996	1997		Annual Average	Number of Years
Carbon Dioxide	Direct	short tons	197	0	0	0	High	380.0	20

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Planergy

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

2. Reports to Other Agencies:

This report contains information on:
Entire Project

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

egawatt hours (MMh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C.

"Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program was discontinued due to economic reasons in 1996.

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Residential Smart Saver & Heat Pump Savings Programs

Part I. General Project Information

- | | | | |
|---------------------|------------------------------------------------------|-----------------------------------------|---------------------|
| 1. Name of Entity: | Cinergy Corp. | 4. Date Project Became Operational: | Jan 1991 |
| 2. Name of Project: | Residential Smart Saver & Heat Pump Savings Programs | 5. Reasons for Project: | Voluntary reduction |
| EIA Project ID: | 303 | 6. Participation In Voluntary Programs: | Climate Challenge |
| 3. Location: | U.S. Only | | |
| Dispersed: | Southwest Ohio & Central and Southern Indiana | | |

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entry ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Residential Smart Saver & Heat Pump Savings Programs

Part II. Specific Project Information

Project Type:

Equipment and appliances improvement or replacement
 Lighting and lighting control
 Heating, ventilation, and air conditioning
 Building shell improvement

2. Load Shape Effects:

Energy efficiency

3. Sector(s) of Energy User(s) Affected by Project

Residential

4. Project Scale:

Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity			
		1994	1995	1996	1997
Electricity	megawatt hours	-33979	-43693	-43693	-43693

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.

Residential Smart Saver & Heat Pump Savings Programs

6. Project Description:

Residential Smart Saver Program (PSI Energy)

This program promotes the installation of high efficiency air conditioning and heat pumps (including geothermal) in new and existing single family, multi-family and manufactured homes. It also promotes and installs selected energy efficiency construction practices that exceed the Indiana state building codes. Customers participate in the program as a result of interaction with PSI, a Cinergy Company, sales personnel, builders, dealers and other trade allies.

Requirements for the program include minimum Seasonal Energy Efficiency Rating (SEER) levels for HVAC equipment, minimum insulation levels for building shell and ductwork outside conditioned airspace, and minimum individual room airflow requirements for Smart Saver homes. Infiltration reduction services are performed by PSI contractors to further enhance energy efficiency of the home. Water heater energy efficiency measures (including tank wraps, pipe insulation, shower heads and faucet aerators) are also installed in homes with electric water heating. Incentive levels are set to encourage higher than minimum SEER levels, greater window efficiencies and desuperheater for geothermal heat pumps. Compact fluorescent lamps are also installed as part of the program.

Residential High-Efficiency Heat Pump Rebate Program (Cincinnati Gas & Electric)

The high-efficiency heat pump rebate program (the Heat Pump Savings Plan) offers rebates to residential customers on the purchase of heat pump systems with a Seasonal Energy Efficiency Ratio (SEER) of 12.0 or higher. (The current federal minimum standard for heat pump efficiency is 10.0). A heat pump system is defined as a condenser and coil match as listed in the most recent issue of the Air Conditioning and Refrigeration Institute (ARI) Directory. The program targets customers living in single-family dwellings who already have electric heat and central air conditioning and are replacing existing equipment.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Residential Smart Saver & Heat Pump Savings Programs

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1994-1997				Accuracy	Emissions/Reductions in Future Years
			Physical Quantity	Physical Quantity	Physical Quantity	Physical Quantity		
Carbon Dioxide	Direct	short tons	32483	47457	47457	47457	High	32,500.0 20

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Residential Smart Saver & Heat Pump Savings Programs

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy & Cincinnati Gas & Electric

This report contains information on:

Entire Project

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP
Public Utility Commission of Ohio	IRP

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 4. Transportation and Off-Road Vehicles

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Fleet Alternative Fuels

Part I. General Project Information

- 1. Name of Entity:** Cinergy Corp.
- 2. Name of Project:** Fleet Alternative Fuels
EIA Project ID: 401
- 3. Location:**
U.S. Only
Dispersed: Southwest Ohio & Central and Southern Indiana
- 4. Date Project Became Operational:**
Jan 1991
- 5. Reasons for Project:**
Voluntary reduction
- 6. Participation In Voluntary Programs:**
Climate Challenge

Voluntary Reporting of Greenhouse Gases

1/4/99
 11:06:02

Schedule II. Project-Level Emissions and Reductions

Section 4. Transportation and Off-Road Vehicles

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

**Cinergy Corp.
 Fleet Alternative Fuels**

Part II. Specific Project Information

1. Project Type:
 Operation of alternative fuel vehicles (AFVs)
 Infrastructure Improvement

2. Mode:
 Road

3. Fuel(s) Saved or Displaced:

Fuel or Energy Type	Unit of Measure	Quantity				
		1994	1995	1996	1997	
Motor Gasoline	gallons	94785	94151	94151	94151	

4. Fuel Switching:

Fuel or Energy Type	Unit of Measure	Quantity				
		1994	1995	1996	1997	
Propane	gallons	118357	114628	114628	114628	
Natural Gas(Pipeline)	thousand standard cubic feet	1045	1306	1306	1306	

Part II. Specific Project Information

5. Project Scale:
 Full-Scale/Commercial

6. Project Size:

Unit of Measure	Quantity			
	1994	1995	1996	1997
vehicles	105	131	131	131

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 4. Transportation and Off-Road Vehicles

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Fleet Alternative Fuels

7. Project Description:

The Cinergy Corp. operates a certain number of its vehicles using the alternative fuels propane and natural gas. The company has one propane filling station and currently has three natural gas filling stations (two open to the public). The natural gas vehicles are dual fuel vehicles - natural gas and gasoline. This is due to the fact that compressed natural gas is used and has a limited volume which limits vehicle range.

Propane is used in passenger vehicles, light trucks, and heavy trucks. Compressed natural gas is used in passenger vehicles and light trucks. The company has an aggressive program to provide technical assistance and compressor equipment to other fleet operators, and has opened a commercial conversion facility for the general public.

Emissions reported for this project are emissions for the entire vehicle fleet, based on motor gasoline, diesel, propane and natural gas consumption.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 4. Transportation and Off-Road Vehicles

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Fleet Alternative Fuels

Part III. Greenhouse Gas Emissions and Reductions

	Gas	Type	Unit of Measure	1994	1995	1996	1997	Accuracy	Emissions/Reductions	
				Physical Quantity	Physical Quantity	Physical Quantity	Physical Quantity		Annual Average (in thousands)	Number of Years
Emissions										
Carbon Dioxide		Direct	short tons	812.74	804.86	804.86	804.86	High		
Reductions										
Carbon Dioxide		Direct	short tons	118.1	119.75	119.75	119.75	High		

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 4. Transportation and Off-Road Vehicles

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.
Fleet Alternative Fuels

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This report contains information on:
Entire Project

5. Estimation Method:

The following were the emission rates used, all from Instructions, Appendix B:

19.641 lb CO2/gal gasoline
12.669 lb CO2/gal propane
120.593 lb CO2/Mcf natural gas

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 5. Waste Treatment and Disposal--Methane

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Rumpke Landfill Gas Recovery

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Rumpke Landfill Gas Recovery
EIA Project ID: 502
3. Location: U.S. Only
Facility Name and Address:
Rumpke Sanitary Landfill
10777 Hughes Rd.
Cincinnati, OH 45210-

4. Date Project Became Operational:
Jan 1991
5. Reasons for Project:
Voluntary reduction
6. Participation In Voluntary Programs:
Landfill Methane Outreach Program
Climate Challenge
Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

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 11:06:12

Schedule II. Project-Level Emissions and Reductions
Section 5. Waste Treatment and Disposal - Methane

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Rumpke Landfill Gas Recovery

Part II. Specific Project Information

Type of Facility:
 Landfill

2. Type of Waste Handled:
 Municipal solid waste including yard waste
 Industrial solid waste

3. Project Type:
 Biogas recovery: methane recovery for energy

5. Biogas Recovered and Use:

Description	Unit of Measure	Quantity			
		1994	1995	1996	1997
avg gas heat content	British thermal units per standard cubic	1000	1000	1000	1000
total vol of gas recovered	thousand standard cubic feet	941000	855023	1090496	1090496
vol gas sold offsite	thousand standard cubic feet	941000	855023	1090496	1090496

6. Project Description:

The Cincinnati Gas & Electric Company (CG&E), a Cinergy Company, contracts with Air Products, Inc. to take recovered methane gas from the Rumpke Inc. landfill. Air Products owns and operates a gas cleaning process that enhances the recovered methane gas and increases the Btu content to approximately equal that of pipeline quality natural gas. CG&E takes possession of the methane gas at the landfill and places it directly into its natural gas distribution system. Gas is recovered at a rate of 2,000 to 3,000 mcf per day. The methane is metered at the gas cleaning plant. CG&E has a long term contract with Air Products to supply the methane gas.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 5. Waste Treatment and Disposal—Methane

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Rumpke Landfill Gas Recovery

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Emissions/Reductions					Accuracy	Emissions/Reductions	
			1994	1995	1996	1997	Future Years		Annual Average	Number of Years
Methane	Indirect	short tons	19893	18075	23053	23000	High	40,000.0	10	

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 5. Waste Treatment and Disposal--Methane

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Rumpke Landfill Gas Recovery

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:
Per contractual agreement, Cinergy will be the sole reporter of this project.

2. Reports to Other Agencies:

Government Body
Public Utility Commission of Ohio

Reference Number
Gas LTRR

This report contains information on:
Entire Project

5. Estimation Method:

Landfill gas is collected and passed through a series of filters before it is injected into The Cincinnati Gas & Electric natural gas system. The gas is distributed to primarily residential customers. The amount of landfill gas supply is metered.

Factors:
Methane density 42.28 lb/Mcf

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 5. Waste Treatment and Disposal--Methane

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Danville, IN Electric Generation

Part I. General Project Information

Name of Entity: Cinergy Corp.
Name of Project: Danville, IN Electric Generation
EIA Project ID: 501
Location: U.S. Only
Facility Name and Address:
Bio-Energy Partners
3003 Butler Field Road
Oakbrook, IL 60521-

Date Project Became Operational:
Oct 1994
Reasons for Project:
Voluntary reduction
Participation In Voluntary Programs:
Climate Challenge
Landfill Methane Outreach Program
Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 5. Waste Treatment and Disposal - Methane

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Danville, IN Electric Generation

Part II. Specific Project Information

Type of Facility:
 Landfill

2. Type of Waste Handled:
 Municipal solid waste including yard waste
 Industrial solid waste

3. Project Type:
 Biogas recovery: methane recovery for energy

5. Biogas Recovered and Use:

Description	Unit of Measure	Quantity			
		1994	1995	1996	1997
total vol of gas recovered	thousand standard cubic feet	73531	406872	599680	657236
avg gas heat content	British thermal units per standard cubic	500	500	500	500
electricity generated	kilowatt hours	3197009	17690082	26073015	25278273

6. Project Description:

Bio-Energy Partners, a subsidiary of Waste Management, Inc., operates a small generating unit at the Danville, IN landfill which uses recovered landfill methane gas in a lean burn engine to generate electricity. The facility generates an average of 1.5 million kWh per month. PSI Energy, a Cinergy company, buys the electricity from Bio-Energy Partners and puts the electricity into their grid.

The project has a dual effect in that it directly reduces Cinergy's greenhouse gas emissions and has an indirect effect of reducing methane emissions from the Danville landfill. Methane emissions are reduced at the landfill offsetting Cinergy's methane gas emissions from its natural gas distribution system. Also, the electricity generated by the project reduces Cinergy's need to generate electricity in its coal fired generating plants, thereby reducing Cinergy's CO2 emissions from the burning of coal.

Voluntary Reporting of Greenhouse Gases

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Schedule II. Project-Level Emissions and Reductions
 Section 5. Waste Treatment and Disposal--Methane

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
 Danville, IN Electric Generation

Part III. Greenhouse Gas Emissions and Reductions

Emissions	Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emission Reductions	
				1994	1995	1996	1997		Annual Average (of Years)	Number of Years
Carbon Dioxide		Indirect	short tons		13866	20437	19814	High		
Methane		Indirect	short tons	776	4292.5	6350	6959	High	5,000.0	20
Carbon Dioxide		Direct	short tons	3056	18139	26735	25920	High	5,000.0	20

Voluntary Reporting of Greenhouse Gases

1/4/99
11:06:23

Schedule II. Project-Level Emissions and Reductions Section 5. Waste Treatment and Disposal--Methane

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.

Danville, IN Electric Generation

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:
Per contractual arrangement, Cinergy is the sole reporter of this project.

This report contains information on:

Entire Project

5. Estimation Method:

Calculations involve:

1. The amount energy required to generate 1 kWh of electricity in the type of engines being used at the landfill to drive the turbine. Engine and turbine efficiencies are used in the calculations.
2. The net emissions are calculated using the amount of CO2 emitted from the lean burn engines and the amount of CO2 emitted that would be emitted by using coal to generate the same amount of electricity.

Factors:

Methane density	42.28 lb/Mcf
Methane emission rate	116.376 lb CO2/Mcf
Coal emission rate	1.912 lb CO2/kWh

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 7. Oil and Natural Gas Systems and Coal Mining--Methane

Entity ID: 190

Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
AFC Electric Generation

Part I. General Project Information

Name of Entity: Cinergy Corp.

4. Date Project Became Operational:
Jun 1995

2. Name of Project: AFC Electric Generation
EIA Project ID: 1004

5. Reasons for Project:
Voluntary reduction

3. Location:
U.S. Only

6. Participation in Voluntary Programs:
Climate Challenge

Facility Name and Address:
Alternate Fuels Corporation
15 Eagle Street, Suite 101
Englewood, NJ 07631-

Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 7. Oil and Natural Gas Systems and Coal Mining - Methane

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
AFC Electric Generation

Part II. Specific Project Information

1. Project Location:

Other: Methane recovery from closed and abandoned underground coal mine.

2. Project Type:

Gas recovery: Coal mine degasification via other: Wells drilled into closed coal mine to recover methane gas.

4. Gas Recovered and Use:

Description	Unit of Measure	Quantity			
		1984	1985	1996	1997
Electricity	kilowatt hours		1448126	4038703	7151631

5. Project Description:

Alternate Fuels Corporation (AFC) operates a small generating unit in western Indiana that uses recovered methane gas from a closed and abandoned deep coal mine. The facility generates an average of 300,000 kWh per month. PSI Energy, a Cinergy company, buys the electricity from AFC and puts the electricity into their grid.

The project has the dual effect in that it directly reduces Cinergy's greenhouse gas emissions and has an indirect effect of reducing methane emissions from the coal mine. Methane emissions are reduced at the coal mine offsetting Cinergy's methane gas emissions from its natural gas distribution system. Also, the electricity generated by the project reduces Cinergy's need to generate electricity in its coal fired generating plants, thereby reducing Cinergy's CO2 emissions from the burning of coal.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 7. Oil and Natural Gas Systems and Coal Mining--Methane

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
AFC Electric Generation

Part III. Greenhouse Gas Emissions and Reductions

Emissions Reductions	Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emission/Reductions in Future Years	
				1994	1995	1996	1997		Annual Average	Number of Years
Carbon Dioxide		Direct	short tons		1013	2824	5606	High		
Methane		Indirect	short tons		306	984	1969	High	1,000.0	10
Carbon Dioxide		Direct	short tons		1384	3862	7333	High	4,000.0	10
Carbon Dioxide		Indirect	short tons		-843	-2352		High	-2,000.0	10

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 7. Oil and Natural Gas Systems and Coal Mining-Methane

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
AFC Electric Generation

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:

Alternate Fuels Corporation

This report contains information on:

Entire Project

5. Estimation Method:

Calculations involve:

1. The amount energy required to generate 1 Kwh of electricity in the type of engines being used at the landfill to drive the turbine. Engine and turbine efficiencies are used in the calculations.
2. The net emissions are calculated using the amount of CO2 emitted from the lean burn engines and the amount of CO2 emitted that would be emitted by using coal to generate the same amount of electricity.

Factors:

Methane density	42.28 lb/Mcf
Methane emission rate	116.376 lb CO2/Mcf
Coal emission rate	1.912 lb CO2/Kwh

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

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11:06:38

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Facility Tree Planting Program

Part I. General Project Information

- 1. Name of Entity: Cinergy Corp.
- 2. Name of Project: Facility Tree Planting Program
EIA Project ID: 801
- 3. Location:
U.S. Only
Dispersed: Southwest Ohio & Central and Southern Indiana
- 4. Date Project Became Operational:
Jan 1991
- 5. Reasons for Project:
Voluntary reduction
- 6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases

1/4/99
 11:06:39

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

**Cinergy Corp.
 Facility Tree Planting Program**

Part II. Specific Project Information

Project Type:
 Afforestation
 Urban Forestry (sequestration only)

2. Forest Composition:
 Forest Composition of the Activity: Tree planting at company facilities and urban forestry programs for urban parks and urban forests. Trees are a mix of hardwoods and pines.

3. Historic Land Use:
 Other: Urban or utility property

4. Reference Case Land Use:
 Other: Urban parks and utility property

5. Project Characteristics:

Timber Productivity	Size Measure	Unit of Measure	Quantity			
			1994	1995	1996	1997
Harvest Age		years				
Area Affected		acres	70		100	24
Trees Planted		number	45755	22750	65000	13390
Mean Age of Stands		years				
		cubic feet volume growth per acre				

Voluntary Reporting of Greenhouse Gases

1/4/99
11:06:39

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 190

Status: Preliminary

Reporting Year: 1997

Cineergy Corp.

Facility Tree Planting Program

6. Project Description:

Cineergy Forestry Projects

Cineergy annually plants trees at certain facilities, such as power plants, as conservation programs. Also, Cineergy plants trees at its facilities for landscaping and screening purposes. In addition Cineergy annually sponsors various civic projects such as tree give-aways at schools and other civic groups, such as the boy scouts or girl scouts. Cineergy sponsors urban forestry programs with local parks departments and/or local forestry departments. The urban forestry programs for the years 1991 through 1995 have been designated as tree planting programs in parks and designated urban forests such as Mt. Airy Forest in Hamilton County, Ohio; and not as energy conservation programs.

The following table represents Cineergy's tree planting programs as described above:

Trees Planted Year	Trees Planted	
	Hardwood	Softwood
1991	247	185
1992	7,657	646
1993	82,754	16,674
1994	40,780	4,975
1995	19,500	3,250
1996	30,000	35,000
1997	13,390	0

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Facility Tree Planting Program

Part III. Sequestration

Sequestration	Gas	Type	Unit of Measure	Physical Quantity					Accuracy	Emissions Reductions	
				1994	1995	1996	1997	In Future Years		Annual Number of Years	
Carbon		Total Storage	short tons	340	562	868	1194	Moderate			
Carbon		Annual Increase	short tons	193	221	307	326	Moderate	616.0	40	
Carbon Dioxide		Total Storage	short tons	1248	2061	3187	4383	Moderate			
Carbon Dioxide		Annual Increase	short tons	708	813	1123	1196	Moderate	2,260.7	40	

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Facility Tree Planting Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:
Participating civic groups could potentially report on this project.

This report contains information on:
Entire Project

Voluntary Reporting of Greenhouse Gases

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Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
 Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Facility Tree Planting Program

5. Estimation Method:

Since a number of trees are planted for landscaping, screening, and are donated to other organizations calculations were based on 650 trees per acre. Where trees were given away to schools or groups a 50% survival rate was assumed. This assumption is based on discussions with local foresters.

The land uses where trees were planted during the specified years were grasslands. The land for the most part was planted in grass and maintained by Cinergy subsidiary companies. Therefore, carbon sequestration rate tables in Appendix A of DOE 1605 (b) Guidelines were used. Specifically Table 5.E.23 and Table 5.E.26 were used.

The sequestration rate in Table 5.E.23 for years 0 to 5 was averaged (9,000 lbs per acre divided by 5 years) to obtain the average sequestration rate of 1,800 lbs of carbon per acre for softwoods trees.

Likewise, the sequestration rate in Table 5.E.26 for years 0 to 5 was averaged (8,000 lbs per acre divided by 5 years) to obtain the average sequestration rate of 1,600 lbs or carbon per acre for hardwood trees.

The average sequestration rates were then applied to the cumulative acres of trees planted or 50% of the trees given to schools or groups.

Year	Softwood Acres (1)	Softwood Carbon Tons (2)	Hardwood Acres (3)	Hardwood Carbon Tons (4)	Total Carbon Tons (5)	Total Carbon Tons (6)	Carbon Sequest. CO2 (7)	Accum. CO2 (8)	CO2 Increase (9)	CO2 Sequest (10)
1991	.28	1.15	.26	.38	.3	.56	.66	.56	2.06	2.06
1992	1.28	1.15	1.15	12.16	9.73	10.88	13.44	11.44	39.92	41.98
1993	26.93	24.24	139.48	111.58	135.82	166.40	147.26	498.45	540.43	1248.36
1994	34.58	31.13	202.21	161.77	192.90	236.80	340.15	707.93	1248.36	2060.88
1995	39.58	35.63	232.21	185.77	221.40	271.80	561.55	812.52	2060.88	3186.73
1996	93.43	84.08	278.36	222.69	306.77	371.79	868.32	1123.02	3186.73	4383.04
1997	93.43	84.08	302.36	241.89	325.97	395.79	1194.29	1196.31	4383.04	

Formulas: (1) *1800 /2000 (2) + (3) + (4) (5) + (6) (7) + (8) (9) + (10) (11) + (12) (13) + (14) (15) + (16) (17) + (18) (19) + (20) (21) + (22) (23) + (24) (25) + (26) (27) + (28) (29) + (30) (31) + (32) (33) + (34) (35) + (36) (37) + (38) (39) + (40) (41) + (42) (43) + (44) (45) + (46) (47) + (48) (49) + (50) (51) + (52) (53) + (54) (55) + (56) (57) + (58) (59) + (60) (61) + (62) (63) + (64) (65) + (66) (67) + (68) (69) + (70) (71) + (72) (73) + (74) (75) + (76) (77) + (78) (79) + (80) (81) + (82) (83) + (84) (85) + (86) (87) + (88) (89) + (90) (91) + (92) (93) + (94) (95) + (96) (97) + (98) (99) + (100) (101) + (102) (103) + (104) (105) + (106) (107) + (108) (109) + (110) (111) + (112) (113) + (114) (115) + (116) (117) + (118) (119) + (120) (121) + (122) (123) + (124) (125) + (126) (127) + (128) (129) + (130) (131) + (132) (133) + (134) (135) + (136) (137) + (138) (139) + (140) (141) + (142) (143) + (144) (145) + (146) (147) + (148) (149) + (150) (151) + (152) (153) + (154) (155) + 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Voluntary Reporting of Greenhouse Gases

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Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.

UtilITree - Rio Bravo Carbon Sequestration

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: UtilITree - Rio Bravo Carbon Sequestration
EIA Project ID: 1006
3. Location:
Foreign Operations Only:
Belize

4. Date Project Became Operational:
Jan 1995
5. Reasons for Project:
Voluntary reduction
6. Participation In Voluntary Programs:
Climate Challenge
United States Initiative on Joint Implementation

Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

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Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
UtiliTree - Rio Bravo Carbon Sequestration

Part II. Specific Project Information

Project Type:

General carbon sequestration projects

2. Forest Composition:

Forest Composition of the Activity: See project description.

3. Historic Land Use:

Forest, forest type: See project description.

4. Reference Case Land Use:

Forest, forest type: See project description.

5. Project Characteristics:

Area Affected	Size Measure	Unit of Measure	Quantity	1994	1995	1996	1997
Trees Planted		acres	number				
Timber Productivity			cubic feet volume growth per acre				
Harvest Age			years				
Mean Age of Stands			years				
				13943		13384	13384

Voluntary Reporting of Greenhouse Gases

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Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.

UtiliTree - Rio Bravo Carbon Sequestration

6. Project Description:

Cinergy Corp. is a member of the UtiliTree Carbon Company which is a non-profit corporation formed through the Edison Electric Institute. UtiliTree Carbon Company has a total of 40 electric utility members. UtiliTree Carbon Company has selected several diverse forestry projects to manage greenhouse gases. One of those projects is the Rio Bravo Carbon Sequestration Pilot Project which is a U.S. Initiative on Joint Implementation (USIJI) Project.

The Rio Bravo Carbon Sequestration Pilot Project is being undertaken through a partnership of Wisconsin Electric, Detroit Edison, Pacificorp, and UtiliTree Carbon Company (the "Financial Participants"). The Nature Conservancy, and a Belizean NGO, Program for Belize (PFB). In addition to their financial role, the Financial Participants are closely involved in project design and support in project implementation. The project was accepted by USIJI on January 31, 1995.

The project area is located in northwestern Belize, Central America, and centered on the eastern land parcels of the Rio Bravo Conservation and Management Area. The project consists of two components. Component A includes the purchase of a 13,843 acre parcel of endangered forest threatened with deforestation to facilitate agricultural conversion. The purchase of this parcel will link two forested Rio Bravo Properties owned by PFB in the northwestern corner of Belize. Component B establishes a sustainable forestry management program on the entire Rio Bravo Conservation and Management Area which includes Component A, as well as the other land parcels already held by PFB. Component B will implement improved forest management techniques and timber processing and marketing approaches, and is designed to optimize carbon sequestration in a 120,000 acre area.

This report covers only Component A of the project, completed in December, 1995. Subsequent reports will include sequestration for both Components A and B. It also is limited to CO2 reporting only. Although it is recognized that the project may influence emissions of other greenhouse gases, no reliable data are available at this time.

The carbon and/or CO2 sequestered by the project is divided equally among the Financial Participants. UtiliTree Participants are assigned shares of carbon or CO2 proportional to their investment in UtiliTree Carbon Company. This report covers only Cinergy's portion of UtiliTree's share of the carbon or CO2 reported by PFB to UtiliTree Carbon Company. Cinergy's UtiliTree portion of the Rio Bravo Carbon Sequestration Pilot Project represents 4.5% of UtiliTree's share of carbon or CO2.

Voluntary Reporting of Greenhouse Gases

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Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.

Utilitree - Rio Bravo Carbon Sequestration

Part III. Sequestration

Sequestration	Gas	Type	Unit of Measure	1997				Accuracy	Emissions Reductions Ineligible Years Annual Number of Years
				Physical Quantity	Physical Quantity	Physical Quantity	Physical Quantity		
Carbon		Total Storage	short tons	2209	4377	6312	High		
Carbon		Annual Increase	short tons	2209	2168	1935	High		
Carbon Dioxide		Total Storage	short tons	8109	16067	23170	High		
Carbon Dioxide		Annual Increase	short tons	8152	8152	7103	High		

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.

Utilitree - Rio Bravo Carbon Sequestration

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:
None

2. Reports to Other Agencies:

This report contains information on:

A portion of the project 0.05

Government Body

Reference Number

USJI

5. Estimation Method:

The project reference case is based on the scenario that, but for the project, the use of the land purchased under Component A would have changed from traditional logging to intensive mechanized agriculture. It assumes that, following purchase by mechanized farming interests, open water and herbaceous swamps would remain unaltered, and all other lands would be converted to agriculture over a 5 year period. The historic trend of clearance from forest to intensive agriculture in the project area is documented.

The carbon sequestration estimates were based upon actual measurements from 58 permanent plots in Component A of the Rio Bravo project in 1996. Component A includes nine areas which include four different forest community types and totals 13,843 acres.

The calculation model used to determine carbon offsets was:

$$NETC = Cp - Cag - Cal$$

Where:

NETC = net carbon sequestration

Cp = carbon stocks in the preserved area

Cag = carbon stocks in areas converted to agriculture

Cal = the amount of carbon returned to the atmosphere due to improved logging practices.

The carbon offset for Year 1 is (NETC = (Cp - Cag) / 5 because there has been no logging since the project began. Only above ground biomass carbon and soil carbon were included. Future analysis of the litter and herbaceous vegetation, and below ground biomass should yield additional sequestered carbon.

Communities included in Component A include swamp forest, upland burned areas, uplands, and upland mixed with transition to bayo.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Rio Bravo Carbon Sequestration Pilot Project

Part I. General Project Information

- 1. Name of Entity:** Cinergy Corp.
- 2. Name of Project:** Rio Bravo Carbon Sequestration Pilot Project
EIA Project ID: 1007
- 3. Location:**
Foreign Operations Only:
Belize
- 4. Date Project Became Operational:**
Jan 1995
- 5. Reasons for Project:**
Voluntary reduction
- 6. Participation In Voluntary Programs:**
United States Initiative on Joint Implementation
Climate Challenge

Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Rio Bravo Carbon Sequestration Pilot Project

Part II. Specific Project Information

- 1. Project Type:**
Forest preservation
- 2. Forest Composition:**
Forest Composition of the Activity: See project description.
- 3. Historic Land Use:**
Forest, forest type: See project description.
- 4. Reference Case Land Use:**
Forest, forest type: See project description.
- 5. Project Characteristics:**

	Size Measure	Unit of Measure	Quantity		
			1994	1995	1997
Mean Age of Stands		Years			
Timber Productivity		cubic feet volume growth per acre			
Area Affected		acres		13843	13843
Trees Planted		number			
Harvest Age		years			

Voluntary Reporting of Greenhouse Gases

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Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Rio Bravo Carbon Sequestration Pilot Project

6. Project Description:

The Rio Bravo Carbon Sequestration Pilot Project is being undertaken through a partnership of Wisconsin Electric, Profit Edison, Pacificorp, and Utilitree Carbon Company (the "Financial Participants"), The Nature Conservancy, a Belizean NGO, Program for Belize (PFB). In addition to their financial role, the Financial Participants are closely involved in project design and support in project implementation. The project was accepted by USFJ on January 31, 1995.

The project area is located in northwestern Belize, Central America, and centered on the eastern land parcels of the Rio Bravo Conservation and Management Area. The project consists of two components. Component A includes the purchase of a 13,843 acre parcel of endangered forest threatened with deforestation to facilitate agricultural conversion. The purchase of this parcel will link two forested Rio Bravo Properties owned by PFB in the northwestern corner of Belize. Component B establishes a sustainable forestry management program on the entire Rio Bravo Conservation and Management Area which includes Component A, as well as the other land parcels already held by PFB. Component B will implement improved forest management techniques and timber processing and marketing approaches, and is designed to optimize carbon sequestration in a 120,000 acre area.

This report covers only Component A of the project, completed in December, 1995. Subsequent reports will include sequestration for both Components A and B. It also is limited to CO2 reporting only. Although it is recognized that the project may influence emissions of other greenhouse gases, no reliable data are available at this time.

The carbon and/or CO2 sequestered by the project is divided equally among the Financial Participants.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Rio Bravo Carbon Sequestration Pilot Project

Part III. Sequestration

Gas	Type	Unit of Measure	1997 Physical Quantity				Accuracy	Emissions Reductions In Progress
			1994	1995	1996	1997		
Carbon	Total Storage	short tons		48426	96852	140860	High	
Carbon	Annual Increase	short tons		48426	48426	44008	High	
Carbon Dioxide	Total Storage	short tons		177723	355447	516956	High	
Carbon Dioxide	Annual Increase	short tons		177723	177724	161509	High	

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.

Rio Bravo Carbon Sequestration Pilot Project

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:

None

This report contains information on:

A portion of the project 0.2

2. Reports to Other Agencies:

Government Body

Reference Number

USUJ

5. Estimation Method:

The project reference case is based on the scenario that, but for the project, the use of the land purchased under Component A would have changed from traditional logging to intensive mechanized agriculture. It assumes that, following purchase by mechanized farming interests, open water and herbaceous swamps would remain unaltered, and all other lands would be converted to agriculture over a 5 year period. The historic trend of clearance from forest to intensive agriculture in the project area is documented.

The carbon sequestration estimates were based upon actual measurements from 58 permanent plots in Component A of the Rio Bravo project in 1996. Component A includes nine areas which include four different forest community types and totals 13,843 acres.

The calculation model used to determine carbon offsets was:

$NETC = Cp - Cag - Cal$

Where:

NETC = net carbon sequestration

Cp = carbon stocks in the preserved area

Cag = carbon stocks in areas converted to agriculture

Cal = the amount of carbon returned to the atmosphere due to improved logging practices.

The carbon offset for Year 1 is (NETC = (Cp - Cag) / 5 because there has been no logging since the project began. Only above ground biomass carbon and soil carbon were included. Future analysis of the litter and herbaceous vegetation, and below ground biomass should yield additional sequestered carbon.

Communities included in Component A include swamp forest, upland burned areas, uplands, and upland mixed with transition to bajo.

Voluntary Reporting of Greenhouse Gases

1/4/99
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Schedule II. Project-Level Emissions and Reductions Section 8. Carbon Sequestration

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.

UtilITree - Mississippi River Valley Bottomland Hardwood

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: UtilITree - Mississippi River Valley Bottomland Hardwood
EIA Project ID: 1008
3. Location:
U.S. Only
Dispersed: Catahoula Parish Louisiana

4. Date Project Became Operational:
Apr 1997
5. Reasons for Project:
Voluntary reduction
6. Participation In Voluntary Programs:
Climate Challenge
Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
UtilTree - Mississippi River Valley Bottomland Hardwood

Part II. Specific Project Information

- 1. Project Type:**
 Afforestation
- 2. Forest Composition:**
 Forest Composition of the Activity: Bottomland Hardwoodes, nuttall oak, overcup oak, willow oak, bitter pecan, sweet pecan, sweet gum, sugarterry, cottonwood, and green ash.
- 3. Historic Land Use:**
 Cropland, crop type: Marginal agricultural cropland, previously in grain crops
- 4. Reference Case Land Use:**
 Cropland, crop type: Marginal agricultural cropland previously in grain crops
- 5. Project Characteristics:**

Area Affected	Size Measure	Unit of Measure	Quantity		
			1994	1995	1996
Trees Planted	acres	number			
Timber Productivity	cubic feet volume growth per acre	years			
Harvest Age	years				
Mean Age of Stands	years				

70
 1

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190

Status: Preliminary

Reporting Year: 1997

Cinergy Corp.

Uitlittree - Mississippi River Valley Bottomland Hardwood

6. Project Description:

Project will investigate the feasibility of using bottomland hardwood forest restoration on marginal farmland in Mississippi Valley as a means of sequestering atmospheric carbon dioxide, a principal greenhouse gas. The project will also seek to improve the methods of reestablishing such forests. The 60 acre study site, located in Catahoula Parish, Louisiana, is owned by the Louisiana Department of Wildlife and Fisheries and is part of a 7,000 acre tract that is available for afforestation. The restored forest will be part of the Beouf Wildlife Management Area. The project life of the plantations established will be 70 years. Once these plantations are established, the stands will be managed on a sustained yield basis.

Both tree planting and direct seeding of bottomland hardwood species will be involved. Nursery raised 1-0 seedlings will be used and planted on a 10' x 10' spacing for an initial density of 545 seedlings per acre. Direct seeding will be done on a three foot spacing with the rows eight feet apart, for an initial density of 1815 seeds per acre. The direct seeding species to be used include bitter pecan, sweet pecan, nuttall oak, overcup oak, and willow oak. Nursery seedling species to be used include sweet gum, sugarcorn, cottonwood, and green ash.

Also, the project will evaluate site preparation techniques aimed at enhancing early survival and growth of the planted trees. Older planted hardwood forests (up to 30 years old) will be sampled in the region to make projections on longer-term carbon sequestration rates. The project will advance the current state of knowledge regarding plantation establishment and maintenance in the region, as well as on the quantification of carbon sequestration by bottomland hardwoods. There is great potential for the project to be expanded or replicated and thereby provide the region with healthy bottomland forests and improve the health of the local timber market.

Voluntary Reporting of Greenhouse Gases

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 11:07:11

Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
UtiliTree - Mississippi River Valley Bottomland Hardwood

Part III. Sequestration

Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emission Reductions	
			1994	1995	1996	1997		Annual Average	Number of Years
Carbon	Total Storage	short tons					High	0.0	0
Carbon	Annual Increase	short tons					High	2.0	70
Carbon Dioxide	Total Storage	short tons					High	0.0	0
Carbon Dioxide	Annual Increase	short tons					High	6.0	70

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.

UtiliTree - Mississippi River Valley Bottomland Hardwood

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:

Other UtiliTree Carbon Company Members

This report contains information on:

A portion of the project 0.0399

5. Estimation Method:

Carbon sequestration will be monitored through annual measurements of the planted trees and soil carbon accrual on permanent sample plots in the study area by Louisiana Tech University personnel.

Sampling Design

Each treatment plot identified above will be divided into four quadrants and a .10 acre measurement plot will be established in the center of each quadrant. All established trees in the measurement plots will be tallied and measured for total height and root collar diameter for the first five growing seasons.

Above Ground Biomass

Destructive sampling will involve one tree of each species for the determination of total above ground biomass.

Below Ground Biomass

Measurement of blow ground biomass accrual in woody roots will be made through the excavation of one tree per species per treatment plot.

Soil Carbon

Soil samples will be collected from various depths within each sample plot quadrant. The soil samples will be analyzed for total organic content using the Walkley-Black method.

Measurements of Older Plantations

Additional data measurements will be taken from older bottomland hardwood plantations (in stands ranging from 5 to 30 years in age) on similar soils to determine the carbon sequestration beyond that of the trees actually planted in the project area.

Cinergy owns a percentage of UtiliTree's investment of the project. The carbon sequestration reported reflects that percentage.

Voluntary Reporting of Greenhouse Gases

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11:07:17

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 190

Status: Preliminary

Reporting Year: 1997

Cinergy Corp.

UtiliTree - W. Oregon Carbon Sequestration Proj.

Part I. General Project Information

Name of Entity: Cinergy Corp.

4. Date Project Became Operational:

Apr 1997

2. Name of Project: UtiliTree - W. Oregon Carbon Sequestration Proj.
EIA Project ID: 1009

5. Reasons for Project:

Voluntary reduction

3. Location:

U.S. Only

Dispersed: Lane, Yamhill and Clackamas counties, Oregon

6. Participation In Voluntary Programs:

Climate Challenge

Other programs:

Program:

Sponsor:

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
UtiliTree - W. Oregon Carbon Sequestration Proj.

Part II. Specific Project Information

- 1. **Project Type:**
 Afforestation
- 2. **Forest Composition:**
 Forest Composition of the Activity: douglas fir, grand fir, western red cedar, and ponderosa pine
- 3. **Historic Land Use:**
 Other: hayland, pasture, and idle.
- 4. **Reference Case Land Use:**
 Other: hayland, pasture, and idle.
- 5. **Project Characteristics:**

Area Affected	Size Measure	Unit of Measure	Quantity		
			1994	1995	1997
Trees Planted	acres	number			
Timber Productivity		cubic feet volume growth per acre			
Harvest Age		years			65
Mean Age of Stands		years			1

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Utilitree - W. Oregon Carbon Sequestration Proj.

6. Project Description:

Western Oregon Carbon Sequestration Project will sequester carbon by planting trees on unforested non-industrial timberland in western Oregon that otherwise would not be replanted. Native species, such as douglas fir, western red cedar, and ponderosa pine will be planted on participating properties at an initial density of 500 seedlings per acre with the objective of establishing 400 dominant and healthy trees per acre that are well spaced after four growing seasons. Specific actions will be taken as necessary to ensure success of the reforestation effort including animal control, brush removal, and replanting dead or damaged seedlings.

The project includes a long term forest management plan for each site to assure that carbon sequestration goals conform to forest management initiatives and landowner concerns. The plan is a contractual agreement between landowners and the project's developer, Trexler and Associates. The contract which obligates landowners for a minimum of 65 years, assures that the land will remain forested within the provisions required for a successful carbon sequestration project.

79 acres were planted in 1997 involving 33,000 seedlings. The species planted in 1997 were douglas fir, western red cedar, ponderosa pine, and grand fir.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entry ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.

UtiliTree - W. Oregon Carbon Sequestration Proj.

Part III. Sequestration

Sequestration	Gas	Type	Unit of Measure	1994	1995	1996	1997	Accuracy	Emission Reductions	
				Physical Quantity	Physical Quantity	Physical Quantity	Physical Quantity		Annual Average	Number of Years
Carbon		Total Storage	short tons				4	High		
Carbon		Annual Increase	short tons				4	High	4.0	65
Carbon Dioxide		Total Storage	short tons				14	High		
Carbon Dioxide		Annual Increase	short tons				14	High	14.0	65

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Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 190

Reporting Year: 1997

Status: Preliminary.

Cinergy Corp.

UtiliTree - W. Oregon Carbon Sequestration Proj.

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:

Other UtiliTree Carbon Company members

This report contains information on:

A portion of the project 0.0399

5. Estimation Method:

Contractual monitoring will take place and OWI will be responsible for overseeing all landowner activities through year 5. Annual monitoring will follow planting to ensure sites remain fully stocked and in a free-to-grow state. OWI will inspect all property included in the program by the end of the fifth growing season after planting and certify that the specified number of seedlings are established per acre and the seedlings are well-distributed. Monitoring and verification will occur over 5 years thereafter.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
UtiliTree - Reduced Impact Logging, Malaysia

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: UtiliTree - Reduced Impact Logging, Malaysia
EIA Project ID: 1010
3. Location:
Foreign Operations Only:
Malaysia

4. Date Project Became Operational:
Sep 1997
5. Reasons for Project:
Voluntary reduction
6. Participation In Voluntary Programs:
Climate Challenge

Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

UtiliTree - Reduced Impact Logging, Malaysia

Part II. Specific Project Information

Project Type:

Modified forest management

2. Forest Composition:

Forest Composition of the Activity: Natural dipterocarp tropical forests

3. Historic Land Use:

Forest, forest type: Natural dipterocarp tropical forest

4. Reference Case Land Use:

Forest, forest type: Natural dipterocarp tropical forest

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.

Utilitree - Reduced Impact Logging, Malaysia

6. Project Description:

The reduced impact logging (RIL) project involves implementation of techniques to reduce carbon dioxide (CO2) emissions associated with uncontrolled logging of natural tropical forests in Malaysia.

The RIL project will be carried out on 2,500 acres by Rakyat Berjaya Sdn. Bhd (RBJ) of Malaysia, on land within its 2.4 million acre timber concession. The Forest Research Institute of Malaysia, Sabah Forestry Department, Center of International Forestry Research in Bogor, Indonesia, and Rainforest Alliance, a New York based non-governmental environmental organization, joined the project as coordinators. Foresters from the Queensland Forest Service, the Swedish University of Agriculture and Science, and the University of Florida have been consultants to the project and will continue as advisors.

The RIL project aims to reduce greenhouse gas emissions from natural forests by preventing degradation and loss of natural tropical forests, and sustain the level of forest products. This approach presents an environmental win-win situation where mitigation of greenhouse gas emissions is linked to tropical forest conservation.

Historically, in the process of harvesting as few as 10 to 15 trees per hectare, as much as 300 to 350 metric tons of CO2 per hectare were emitted due to uncontrolled and destructive logging practices. Trees literally felled together by vines were felled in random directions and extracted by bulldozers, breaking and uprooting as many as 50% of the remaining trees and crushing up to 40% of the land area. The potential for regrowth (sequestration) within int residual forest stand was severely impaired by these destructive practices.

It has been demonstrated that by utilizing reduced impact logging guidelines logging damage could be reduced by as much as 50% through precutting vines, directional felling, an planned extraction of timber on properly constructed and utilized skid trails.

Greenhouse gas benefits are derived from reduced emissions due to less forest destruction and enhanced sequestration in the residual forest following harvest for forest products.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
UtilTree - Reduced Impact Logging, Malaysia

Part III. Sequestration

Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emission Reductions	
			1994	1995	1998	1997		Annual Average	Number of Years
Carbon	Total Storage	short tons					High	409	40
Carbon	Annual Increase	short tons					High	409	40
Carbon Dioxide	Total Storage	short tons					High	1501	40
Carbon Dioxide	Annual Increase	short tons					High	1501	40

Voluntary Reporting of Greenhouse Gases

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Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
UtiliTree - Reduced Impact Logging, Malaysia

Part IV. Project Evaluation

Reference Case:
Modified - Other (See Estimation Method)

3. Multiple Reporting:
Other entities that could report on the effects of this project:
Other UtiliTree Carbon Company members

This report contains information on:
A portion of the project 0.0399

5. Estimation Method:
To verify success, the project will use third party verification and field based methods to quantify carbon dioxide benefits. Quantification of the greenhouse gas benefits will be conducted by and under the direction of Dr. Michelle A. Pinard, of the University of Aberdeen in Scotland. The benefits are quantified by field based carbon flux measurements comparing reduce impact logging practices and conventional logging practices, one, two, and five years after logging. Benefits accrued beyond field measurements are based on sensitive literature and modeling-based emissions for similar sequestration projects.
The carbon pools measured will be above ground biomass, below ground biomass, soil carbon, other necromass. Permanent sampling plots will be established and measured in the project area prior to logging and then measured after logging to quantify the carbon benefits.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 10. Other Emission Reduction Projects

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Recycled Paper and Aluminum

Part I. General Project Information

- 1. Name of Entity: Cinergy Corp.
- 2. Name of Project: Recycled Paper and Aluminum
EIA Project ID: 1002
- 3. Location:
U.S. Only
Dispersed: Southwestern Ohio & Central and Southern Indiana
- 4. Date Project Became Operational:
Jan 1994
- 5. Reasons for Project:
Voluntary reduction
- 6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
 Schedule II. Project-Level Emissions and Reductions
 Section 10. Other Emission Reduction Projects

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Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
 Recycled Paper and Aluminum

Part II. Specific Project Information

- 1. Project Type:
Materials recycling/reuse
- 2. Project Scale:
Full-Scale/Commercial
- 3. Project Size:

Size Measure	Unit of Measure	Quantity			
		1994	1995	1996	1997
Aluminum Cans	short tons	43	45	51	24
Office & Computer Paper	short tons	240993	110334	121367	113

4. Project Description:
 Cinergy collects and recycles computer paper, mixed office paper, and aluminum cans from its facilities located throughout southwest Ohio, central and southern Indiana, and Northern Kentucky. Materials are deposited in central locations throughout the facilities by Cinergy personnel. Cinergy's Facility Maintenance Department collects the containers and dumps them in a roll-off box which is collected by the recycler.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 10. Other Emission Reduction Projects

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Recycled Paper and Aluminum

Part III. Greenhouse Gas Emissions and Reductions

Reductions	Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emission Reductions In Millions of Tons Annual Average of Years
				1994	1995	1996	1997		
Carbon Dioxide		Indirect	short tons	289751	132986	146304	44400	High	

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 10. Other Emission Reduction Projects

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Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Recycled Paper and Aluminum

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:
Cincinnati Gas & Electric Co., a Cinergy company

This report contains information on:
Entire Project

5. Estimation Method:

The amount of materials recycled was metered by Cinergy personnel.
The amount of CO2 reductions was estimated by using the following:
Each ton of computer and mixed office paper recycled resulted in 1.2 tons of CO2 emissions reductions.
Each ton of aluminum recycled resulted in 13 tons of CO2 emissions reductions.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 10. Other Emission Reduction Projects

Entity ID: 190
Status: Preliminary.

Reporting Year: 1997

Cinergy Corp.
Beneficial Use of Coal Fly Ash

Part I. General Project Information

- 1. Name of Entity:** Cinergy Corp.
- 2. Name of Project:** Beneficial Use of Coal Fly Ash
EIA Project ID: 1001
- 3. Location:**
U.S. Only Dispersed: Southwest Ohio & Central and Southern Indiana
- 4. Date Project Became Operational:** Jan 1991
- 5. Reasons for Project:** Voluntary reduction
- 6. Participation In Voluntary Programs:** Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 10. Other Emission Reduction Projects

Entity ID: 190
 Status: Preliminary

Reporting Year: 1997

Cinergy Corp.
Beneficial Use of Coal Fly Ash

Part II. Specific Project Information

1. Project Type:
 Coal ash reuse
2. Project Scale:
 Full-Scale/Commercial
3. Project Size:

Amount of fly ash	Size Measure	Unit of Measure	Quantity		
			1997	1996	1997
		Short tons	88039	113971	120000
					10500

4. Project Description:
 Beneficial Use of Coal Fly Ash

Cinergy has an active marketing program to market the fly ash from the combustion of coal in their electric generating plants. The fly ash is sold or given to ready-mix concrete plants to substitute for portland cement in mixes for roads and buildings. The substitution of fly ash reduces the amount of CO2 emissions from cement kilns because less cement is manufactured by the kilns.

All fly ash used in the production of portland cement is sold through a broker.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 10. Other Emission Reduction Projects

Entity ID: 190
 Preliminary

Reporting Year: 1997

Cinergy Corp.
Beneficial Use of Coal Fly Ash

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emission Reductions	
			1991	1995	1996	1997		Million Years	Annual Number of Years
Carbon Dioxide	Indirect	short tons	70431	91177	96000	92000	High	140,000.0	20

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 10. Other Emission Reduction Projects

Entity ID: 190

Reporting Year: 1997

Status: Preliminary

Cinergy Corp.
Beneficial Use of Coal Fly Ash

Part IV. Project Evaluation

Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:

Per contractual agreement, Cinergy will be the sole reporter of this project.

This report contains information on:

Entire Project

5. Estimation Method:

In the US, the production of one ton of cement results in the emission of approximately 0.95 tons of CO2. About half of this is from the calcination process, and about half is from the combustion of fossil fuels consumed in the cement's process. Since 1.2 tons of fly ash can be used in place of 1 ton of cement the reduction of CO2 from the cement kiln is approximately 0.8 tons (1 ton of cement divided by 1.2 tons of fly ash = .833 tons of cement; 0.95 tons of CO2 multiplied by .833 = .792 or about .8 tons of CO2).

Voluntary Reporting of Greenhouse Gases
Schedule III. Entity-Level Emissions and Reductions

Entity ID: 190
 Preliminary

Cinergy Corp.

Reporting Year: 1997

Domestic

Part IIb. Reductions in Indirect Emissions

Source of Emissions Greenhouse Gas	Reference Case Type	Unit of Measure	Baseline Emissions					1997				
			1987	1988	1989	1990	1994	1995	1996	1997		
2. Other Indirect Sources												
Methane	Modified	short tons										
Carbon Dioxide	Modified	short tons										

Part III. Sinks and Sequestration

Source of Emissions Greenhouse Gas	Reference Case Type	Unit of Measure	Baseline Emissions					1997				
			1987	1988	1989	1990	1994	1995	1996	1997		
Carbon Dioxide	Modified	short tons										

Part IVa. Total Emissions

Source of Emissions Greenhouse Gas	Reference Case Type	Unit of Measure	Baseline Emissions					1997				
			1987	1988	1989	1990	1994	1995	1996	1997		
Methane		short tons	27069	39145	43748	42028	36444	43196	41324	42861		
Carbon Dioxide		short tons	40941513	41872219	42778415	46193766	46866063	58080676	55632418	57380897		

Part IVb. Total Reductions

Source of Emissions Greenhouse Gas	Reference Case Type	Unit of Measure	Baseline Emissions					1997				
			1987	1988	1989	1990	1994	1995	1996	1997		
Methane	Modified	short tons					20669	22673	30397	31928		
Carbon Dioxide	Modified	short tons					797010	1771038	2222855	1911996		

Voluntary Reporting of Greenhouse Gases
Schedule III. Entity-Level Emissions and Reductions

Entity ID: 190
 Preliminary

Cinergy Corp.

Reporting Year: 1997

Foreign

Source of Emissions Greenhouse Gas	Reference Case Type	Unit of Measure
---------------------------------------	------------------------	-----------------

Carbon Dioxide Modified short tons

1994	1995	1996	1997
------	------	------	------

185575 185875 170113

Part V. Additional Information

1. Estimation Method

Projects are described along with estimation methods in Schedule II.

2. Scope of the Report

This report includes the CO2 emissions from the coal, natural gas, and oil fired electric generation, natural gas distribution, and fleet operations of The Cincinnati Gas & Electric Company (CG&E), PSI Energy (PSI), Union Light Heat & Power (ULH&P), and Lawrenceburg Gas all of which are Cinergy companies.

The CG&E electric generating units included in this report include:
 East Bend Unit 2 (69%)*;
 W. H. Zimmer (46.5%)*;
 Miami Ft. Units 5, 6, 7 (64%)*, 8 (64%)*, GM's 1 through 6;
 W. C. Beckjord Units 1, 2, 3, 4, 5, 6 (37.5%)*, GM's 1 through 4;
 Woodsdale Units 1 through 6; and
 Dick's Creek GM's 1, 3, 4, and 5;
 Duart Units 1 (39%)*, 2 (39%)*, 3 (39%)*, and 4 (39%)*;
 Killen Unit 2 (33%)*;
 Conesville Unit 4 (40%)*.

The PSI electric generating units included in this report include:
 Cayuga Units 1 and 2;
 Edwardsport Units 6, 7, and 8;
 Gallagher Units 1, 2, 3, and 4;
 Gibson Units 1, 2, 3, 4, and 5 (50%)*;
 Noblesville Units 1, 2, and 3;
 Wabash River Units 1 through 6.

* Denotes the percentage of Cinergy ownership in that particular generating unit, and the amount of CO2 emissions from that generating unit reported by Cinergy.

Voluntary Reporting of Greenhouse Gases
Schedule III. Entity-Level Emissions and Reductions

Entity ID: 190
Preliminary

Cinergy Corp.

Reporting Year: 1997

Part V. Additional Information
3. Supplementary Information

Cinergy's electric generating capacity is designed to meet its customers demands. Customer demands are affected by both the economic health of the country and the region, and by extremes in weather conditions - heat in the summer and cold in the winter. These same indicators affect the amount of CO2 emitted by Cinergy's generating facilities from year to year. If the economy enters a downturn, customers' need for electricity is reduced. If the weather patterns produce extended periods of heat or cold, customers' need for electricity is increased.

Cinergy serves parts of three states - Ohio, Kentucky, and Indiana. This region has a healthy economy and the number of residential, commercial, and industrial customers is expected to grow. This growth is reflected in Cinergy's projected net energy production needs (megawatt hours), which are projected to increase at a rate of 1.88 per year between 1995 to 2015. This growth rate is reflected in Cinergy's projected CO2 emissions for 1995 to 2000. It is expected that CO2 emissions will increase by a total of 11 million from the 1990 level of 47.1 million tons to approximately 58 million tons by 2000. These projections of CO2 emission increases assume that no reduction programs are implemented during the period of 1994 to 2000.

It is Cinergy's goal to reduce or offset its CO2 emissions to maintain them at the 1990 levels by 2000 through the implementation of low-cost and cost effective programs as described in Cinergy's Climate Challenge Participation Accord.

Programs reported in Schedule II of this submission.

Voluntary Reporting of Greenhouse Gases
Schedule IV. Commitments to Reduce Greenhouse Gases

1/4/99
11:08:04

Entity ID: 190
Status: Preliminary

Reporting Year: 1997

Cinergy Corp.

Schedule I. Entity Information and Certification

Entity ID: 218
 Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

1. Entity Information

Entity Name and Address

Cinergy Corp.
 139 E. Fourth Street, Rm 552-A P.O. Box: 960
 Cincinnati, OH 45201-0960

Contact:

Eric C. Kuhn
 Sr. Environmental Scientist
 Tel: (513) 287-4061 FAX: (513) 287-3499
 E-mail Address: ekuhn@cinergy.com

2. Type of Reporter

Corporation
 Publicly Traded CIN

3. Geographic Scope of Activities

U.S and Foreign Operations

Foreign countries in which activities are located:

018 Belize

4. SIC Code

49 Electric, Gas, and Sanitary Services

5. Reported Line Items by Schedule Section

Schedule II. Project-Level Emissions and Reductions

- 5 Section 1. Electricity Generation, Transmission, and Distribution
- 14 Section 3. Energy End Use
- 1 Section 4. Transportation and Off-Road Vehicles
- 2 Section 5. Waste Treatment and Disposal—Methane
- 1 Section 7. Oil and Natural Gas Systems and Coal Mining—Methane
- 7 Section 8. Carbon Sequestration
- 2 Section 10. Other Emission Reduction Projects

Schedule III. Entity-Level Emissions and Reductions

	Emissions		Reductions	
	Domestic	Foreign	Domestic	Foreign
Part I: Direct Emissions and Reductions				
Stationary Combustion:	1	0	1	0
Transportation Related:	1	0	1	0
Other Direct:	1	0	0	0
Part II: Indirect Emissions and Reductions				
From Power Transactions:	1	0	0	0
Other Indirect:	0	0	2	0
Part III: Sinks and Sequestration				
Sinks and Sequestration:			1	1
Part IV: Totals				
		0		0

Schedule IV. Commitments to Reduce Greenhouse Gases

6. Confidentiality

This report contains confidential information.

7. Certification

I certify that the information reported on this form is accurate to the best of my knowledge and belief.

Certifying Official: Eric C. Kuhn

Environmental Services Dept.

Tel: (513) 287-4061 Date: 6/1/99

Supplemental Text

The starting dates for some of the projects reported in Schedule II, Section 3, precede the dates for which energy reductions are reported. This reflects projects with an initial sign-up and marketing period, preceding implementation of energy savings measures.

Schedule I. Entity Information and Certification

Entity ID: 8
Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

Voluntary Reporting of Greenhouse Gases

6/1/99
 11:16:10

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp. Wabash River Unit 1 Repowering Project

Part II. Specific Project Information

1. Project Type:
Heat rate or other efficiency improvement
2. Project Scale:
Pilot/Demonstration
3. Total Fuel/Energy Consumption:

Fuel or Energy Type	Unit of Measure	1995	1996	1997	1998
Bituminous	short tons	6007	894746	425171	594658
Natural Gas(Pipeline)	thousand standard cubic feet			143	0

4. Changes in Total Fuel/Energy Consumption Due to Project:

Fuel or Energy Type	Unit of Measure	1995	1996	1997	1998
Bituminous	short tons	-1201	-223437	-113225	-159718

5. Generating Units Included in this Project:

Operator of Unit	Power Plant	Generating Unit	Capacity (MW)
Cinergy Corp.	Wabash River	Unit No. 1	262.00

6. Project Description:

The Wabash River Coal Gasification Repowering Project is a joint venture of Cinergy Corp. and Destec Energy, Inc. of Houston, Texas. The \$400 million cost of the project is shared by the U.S. Department of Energy, Destec, and Cinergy. The Coal Gasification Project will take high sulfur coal, gasify the coal under high pressure and temperature, remove the sulfur from the syngas and combust the syngas in a high efficiency combustion turbine to generate electricity. The waste heat from the gasification process and combustion turbine will be converted to steam energy and sent to repower the #1 steam turbine in the Wabash River Station where it will be used to generate additional electricity.

The project will produce 262 megawatts net of electricity. The project will reduce approximately 90% of the total emissions while increasing the power generation by over 150% as compared to the unit before repowering. This represents a 20% improved heat rate compared to the previous heat rate of unit 1.

Voluntary Reporting of Greenhouse Gases

6/1/99
 11:16:11

Schedule II. Project-Level Emissions and Reductions
 Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.

Wabash River Unit 1 Repowering Project

Part III: Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995			1996			1997			1998			Emission Reductions in Future Years	
			Physical Quantity	Annual Number of Years	Average											
Carbon Dioxide	Direct	short tons	14783	2201908	1063562	1466218	High									
Carbon Dioxide	Direct	short tons	2956	549863	278639	393055	High									

Emissions

Reductions

Voluntary Reporting of Greenhouse Gases

6/7/99
11:16:12

Schedule II. Project-Level Emissions and Reductions

Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

Wabash River Unit 1 Repowering Project

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This report contains information on:
Entire Project

5. Estimation Method:

The number of Btu per kilowatt-hour saved was monitored by plant personnel. The amount of coal used is metered by the station. The project was in its shakedown period during 1995 and production was limited.

The amount of CO₂ was estimated using the total number of tons of coal processed by the unit. It was assumed that the the project's heat rate was 20% better than the old unit #1. During 1996 the operation of the new facility will be monitored and the total megawatts generated will be compared to the heat input and compared to the heat input and electric generation of the former unit #1.

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

Gibson Performance Maximization Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Gibson Performance Maximization Program
EIA Project ID: 101
3. Location:
U.S. Only
Facility Name and Address:
Gibson Generating Station
Rt. 1
Owensville, IN 47665-
4. Date Project Became Operational:
Jan 1992
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases

6/1/98
 11:16:18

Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Reporting Year: 1998

Cinergy Corp.
Gibson Performance Maximization Program

Part II. Specific Project Information

1. Project Type:
Heat rate or other efficiency improvement
2. Project Scale:
Full-Scale/Commercial
3. Total Fuel/Energy Consumption:

Fuel or Energy Type	Unit of Measure	1995	1996	1997	1998
Bituminous	short tons	8520554	6777200	7265168	7556812

4. Changes in Total Fuel/Energy Consumption Due to Project:

Fuel or Energy Type	Unit of Measure	1995	1996	1997	1998
Bituminous	short tons	-20797	-18341	-20192	-20784

5. Generating Units Included in this Project:

Operator of Unit	Power Plant	Generating Unit	Capacity (MW)
Cinergy Corp.	Gibson	Unit 1	635.00
Cinergy Corp.	Gibson	Unit 2	635.00
Cinergy Corp.	Gibson	Unit 3	653.00
Cinergy Corp.	Gibson	Unit 4	628.00
Cinergy Corp.	Gibson	Unit 5	313.00

6. Project Description:

New data acquisition systems were installed in 1991 which monitor plant performance and network plant information systems for use by plant operating engineers. The programs allow plant operators to operate the plant at maximum efficiency, which results in a heat savings of 25 Btu per kilowatt-hour for each of the five units operated at the Gibson Generating Station.

Voluntary Reporting of Greenhouse Gases

6/1998
 11:16:19

Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Gibson Performance Maximization Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995			1996			1997			1998			Emission Reductions in Future Years	
			Physical Quantity	Accuracy	Number of Years	Physical Quantity	Accuracy	Number of Years	Physical Quantity	Accuracy	Number of Years	Physical Quantity	Accuracy	Number of Years	Annual Average	Number of Years
Carbon Dioxide	Direct	short tons	20980563			16671912			17872308			18632454				
Carbon Dioxide	Direct	short tons	51151			45119			49672			51099			41,328.0	5

Emissions

Reductions

Voluntary Reporting of Greenhouse Gases

6/17/98
11:16:20

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.

Gibson Performance Maximization Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This report contains information on:
Entire Project

5. Estimation Method:

The number of Btus per kilowatt-hour saved was monitored by plant personnel. The amount of coal used is metered by the station.

The amount of CO₂ not emitted was estimated using the total gross annual generation (megawatts per year) for each unit at the Gibson Station and multiplying by the number of BTUs saved per megawatt hour, and then dividing that number by the number of BTUs in a pound of coal (25,000 Btus) and dividing that number by 2,000 pounds to determine the number of tons of coal that were not burned. The tons of coal not burned were then multiplied by the number of pounds of CO₂ generated by a ton of coal from EIA's "Form EIA-1605" instruction manual Appendix B. "Fuel and Energy Source Codes and Emission Coefficients".

Schedule II. Project-Level Emissions and Reductions
Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.
Wabash River Heat Rate Improvement

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
 2. Name of Project: Wabash River Heat Rate Improvement
EIA Project ID: 103
 3. Location:
U.S. Only
Facility Name and Address:
Wabash River Generating Station
450 Wabash Road
West Terre Haute, IN 47885-
 4. Date Project Became Operational:
Jan 1992
 5. Reasons for Project:
Voluntary reduction
 6. Participation in Voluntary Programs:
Climate Challenge
- Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

6/1/99
 11:16:26

Schedule II. Project-Level Emissions and Reductions
 Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Wabash River Heat Rate Improvement

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995			1996			1997			1998			Emission Reductions In Future Years	
			Physical Quantity	Annual Average	Number of Years											
Carbon Dioxide	Direct	short tons	1382178	1844262	1653469	1829870	High									
Carbon Dioxide	Direct	short tons	4541	8384	7516	8077	High									

Emissions

Reductions

Voluntary Reporting of Greenhouse Gases

6/1/98
11:16:27

Schedule II. Project-Level Emissions and Reductions

Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.

Wabash River Heat Rate Improvement

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This report contains information on:
Entire Project

5. Estimation Method:

The number of Btu per kilowatt-hour saved was monitored by plant personnel. The amount of coal used is metered by the station.

The amount of CO₂ not emitted was estimated using the total gross annual generation (megawatts per year) for each unit at the Gibson Station and multiplying by the number of BRUs saved per megawatt hour, and then dividing that number by the number of BRUs in a pound of coal (48,000 Btus) and dividing that number by 2,000 pounds to determine the number of tons of coal that were not burned. The tons of coal not burned were then multiplied by the number of pounds of CO₂ generated by a ton of coal from EIA's "Form EIA-1605" instruction manual Appendix B. "Fuel and Energy Source Codes and Emission Coefficients".

Voluntary Reporting of Greenhouse Gases

6/1/99
11:16:31

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.

Merger Dispatch Savings

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
 2. Name of Project: Merger Dispatch Savings
EIA Project ID: 1005
 3. Location:
U.S. Only
Dispersed: Cinergy is able to reduce its CO2 emissions by dispatching its most efficient units first. System-wide benefits are achieved.
 4. Date Project Became Operational:
Jan 1995
 5. Reasons for Project:
Voluntary reduction
 6. Participation in Voluntary Programs:
Climate Challenge
- Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

6/13/98
 11:16:32

Schedule II. Project-Level Emissions and Reductions
 Section 1. Electricity Generation, Transmission, and Distribution

Reporting Year: 1998

Entity ID: 218

Status: Preliminary.

Cinergy Corp.

Merger Dispatch Savings

Part II. Specific Project Information

1. Project Type:
Dispatching changes only
2. Project Scale:
Full-Scale/Commercial
3. Total Fuel/Energy Consumption:

Fuel or Energy Type	Unit or Measure	1995	1996	1997	1998
Bituminous	short tons	23421690	22504927	23832377	28721349

4. Changes in Total Fuel/Energy Consumption Due to Project:

Fuel or Energy Type	Unit or Measure	1995	1996	1997	1998
Bituminous	short tons	-234217	-225049	-238324	-301098

6. Project Description:

Emission reductions are achieved through the economic dispatch of Cinergy's electric generating facilities. Prior to the merger of The Cincinnati Electric & Gas Company and PSI Energy, these generating facilities were dispatched according to the demands of each operating company. After the merger, the units from both operating companies are operated and dispatched as if they were owned by a single company. This method of operation and economic dispatch are estimated to provide a 1 percent efficiency gain in the operation of the system. The efficiency gain is realized because the more recently built generating units are the most efficient units and are the first dispatched to meet customer demands for electricity. Therefore, the most efficient generating units are operating more than the older less efficient units.

Voluntary Reporting of Greenhouse Gases

11:16:33

Schedule II. Project-Level Emissions and Reductions

Section 1. Electricity Generation, Transmission, and Distribution

Reporting Year: 1998

Entity ID: 218
 Preliminary

**Cinergy Corp.
 Merger Dispatch Savings**

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995			1996			1997			1998			Emissions and Reductions in Future Years	
			Physical Quantity	Accuracy	Annual Average	Physical Quantity	Accuracy	Annual Average	Physical Quantity	Accuracy	Annual Average	Physical Quantity	Accuracy	Annual Average	Number of Years	
Emissions	Direct	short tons	57617357		55362120		58627647		64829023		High					
			CFC-11 (trichlorofluoromethane)													
Reductions	Direct	short tons	576174		553621		586277		740981		High					
			Carbon Dioxide													

Voluntary Reporting of Greenhouse Gases

6/7/99
11:16:34

Schedule II. Project-Level Emissions and Reductions

Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp.

Merger Dispatch Savings

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This report contains information on:
Entire Project

2. Reports to Other Agencies:

Government Body	Reference Number
Ohio Utilities Commission	Long Term Forecast
Indiana Utilities Commission	Long Term Forecast
Kentucky Utilities Commission	Long Term Forecast

5. Estimation Method:

Emission reductions are achieved through the economic dispatch of Cinergy's electric generating facilities. Prior to the merger of The Cincinnati Electric & Gas Company and PSI Energy, these generating facilities were dispatched according to the demands of each operating company. After the merger, the units from both operating companies are operated and dispatched as if they were owned by a single company. This method of operation and economic dispatch are estimated to provide a 1 percent efficiency gain in the operation of the system. The efficiency gain is realized because the more recently built generating units are the most efficient units and are the first dispatched to meet customer demands for electricity. Therefore, the most efficient generating units are operating more than the older less efficient units.

Voluntary Reporting of Greenhouse Gases

6/7/99
11:16:38

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218
Status: Preliminary.

Reporting Year: 1998

Cinergy Corp. Cayuga Heat Rate Improvements

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
 2. Name of Project: Cayuga Heat Rate Improvements
EIA Project ID: 102
 3. Location:
U.S. Only
Facility Name and Address:
Cayuga Generating Station
State Route 63
Cayuga, IN 47928-
 4. Date Project Became Operational:
Jan 1992
 5. Reasons for Project:
Voluntary reduction
 6. Participation in Voluntary Programs:
Climate Challenge
- Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

6/1/99 11:16:39

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp. Cayuga Heat Rate Improvements

Part II. Specific Project Information

- Project Type:
Heat rate or other efficiency improvement
- Project Scale:
Full-Scale/Commercial
- Total Fuel/Energy Consumption:

Fuel or Energy Type	Unit or Measure	1995	1996	1997	1998
Bituminous	short tons	2800000	2378600	3057712	2638560

4. Changes in Total Fuel/Energy Consumption Due to Project:

Fuel or Energy Type	Unit or Measure	1995	1996	1997	1998
Bituminous	short tons	-12872	-11312	-19026	-16319

5. Generating Units Included in this Project:

Operator of Unit	Power Plant	Generating Unit	Capacity (MW)
Cinergy Corp.	Cayuga	Unit 1	531.00
Cinergy Corp.	Cayuga	Unit 2	531.00

6. Project Description:

New data acquisition systems were installed in 1991 which monitor plant performance maximization and network plant information systems for use by plant operating engineers. The software programs allow plant operators to operate the plant at maximum efficiency which results in a Btu savings of 25 Btu per kilowatt-hour for each of the two units operated at the Cayuga Generating Station.

In addition to the above improvements, the forced draft fans were redesigned to be more efficient following the failure of the FD fan wheel in 1991. The new design was installed on all four fans at the plant. The more efficient FD fan uses less power resulting in a 40 Btu per kilowatt-hour heat rate improvement in each of the two Cayuga units.

Voluntary Reporting of Greenhouse Gases

6
11:16:41

Schedule II. Project-Level Emissions and Reductions Section 1. Electricity Generation, Transmission, and Distribution

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.

Cayuga Heat Rate Improvements

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This report contains information on:
Entire Project

5. Estimation Method:

The number of Btus per kilowatthour saved was monitored by plant personnel. The amount of coal used is metered by the station.

The amount of CO2 not emitted was estimated using the total gross annual generation (megawatts per year) for each unit at the Gibson Station and multiplying by the number of BTUs saved per megawatt hour, and then dividing that number by the number of BTUs in a pound of coal (65,000 Btus) and dividing that number by 2,000 pounds to determine the number of tons of coal that were not burned. The tons of coal not burned were then multiplied by the number of pounds of CO2 generated by a ton of coal from EIA's "Form EIA-1605" instruction manual Appendix B. "Fuel and Energy Source Codes and Emission Coefficients".

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/1/99
11:16:46

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
Planergy

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Planergy
EIA Project ID: 309
3. Location:
U.S. Only
Dispersed: Central and Southern Indiana
4. Date Project Became Operational:
Jan 1992
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases

11:16:46

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.

Planergy

Part II. Specific Project Information

1. Project Type:
Load control
2. Load Shape Effects:
Energy efficiency
Peak clipping
3. Sector(s) of Energy User(s) Affected by Project
Industrial
4. Project Scale:
Full-Scale/Commercial
5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	1995	1996	1997	1998
Electricity	megawatt hours	0	0	0	0

6. Project Description:
Planergy Program

As a result of PSI's DSM bidding program in 1989, a 10 year contract was signed between PSI and Planergy, Inc. of Austin, Texas that creates the "Water-Link" cooperative. This is a load shedding cooperative among water and waste water treatment facilities in Central and Southern Indiana. The original contract required Planergy to provide 5,000 kilowatts of demand starting in June 1993. The participants are paid \$4 per kilowatt reduction monthly from June through September and \$2.50 per kilowatt reduction in December, January, and February. These credits are scheduled to increase in 1998 to \$5.50 during the summer and \$3.00 during the winter.

This program was discontinued because it was not cost effective.

Voluntary Reporting of Greenhouse Gases

06/23/98 11:16:47

Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
 Planergy

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995-1998 Physical Quantities				Emissions/Reductions in Future Years		
			1995	1996	1997	1998	Annual Average	Number of Years	
Carbon Dioxide	Direct	short tons	0	0	0	0	High	380.0	20

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.
Planergy

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

This report contains information on:
Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

egawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program was discontinued due to economic reasons in 1996.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218
Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
Commercial/Industrial High Efficiency Motors Plan

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Commercial/Industrial High Efficiency Motors Plan
EIA Project ID: 313
3. Location:
U.S. Only
Dispersed: Southwest Ohio
4. Date Project Became Operational:
Jan 1994
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases

6/1/99
 11:16:53

Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.

Commercial/Industrial High Efficiency Motors Plan

Part II. Specific Project Information

1. Project Type:
Motor and motor drive
2. Load Shape Effects:
Energy efficiency
3. Sector(s) of Energy User(s) Affected by Project
Commercial
Industrial
4. Project Scale:
Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity	1995	1997	1998
Electricity	megawatt hours		-1683	-1301	-2615

6. Project Description:

Commercial/Industrial High Efficiency Motors Plan

CG&E, a Cinergy company, offers financial incentives to encourage the use of high efficiency polyphase induction motors. The program targets commercial and industrial facilities with opportunities for motor retrofit, motor replacement, and new motor installation. Specifically, the program will target situations where a new high efficiency motor: 1) replaces a failed standard efficiency motor, 2) replaces an older existing standard efficiency motor, or 3) is used for a new application.

In addition to financial incentives, the program offers post-installation inspections, monitoring of installation to determine hours of use, percent load and energy savings, customer and trade ally educational seminars, and technical assistance.

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions Section 3. Energy End Use

6/1/99
 11:16:54

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp. Commercial/Industrial High Efficiency Motors Plan

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995			1996			1997			1998			Emission Reductions in Future Years	
			Physical Quantity	Accuracy	High	Annual Average	Number of Years									
Carbon Dioxide	Direct	short tons	1828		1413		2840		2840		2840		900.0	20		

Voluntary Reporting of Greenhouse Gases

6/7/99
11:16:55

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp. Commercial/Industrial High Efficiency Motors Plan

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
Cincinnati Gas & Electric, a Cinergy company

2. Reports to Other Agencies:

This report contains information on:
Entire Project

Government Body

Reference Number

Public Utility Commission of Ohio

IRP

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases

6/7/99
11:16:59

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp. Commercial/Industrial Lighting Rebate Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Commercial/Industrial Lighting Rebate Program
EIA Project ID: 311
3. Location:
U.S. Only
Dispersed: Southwestern Ohio
4. Date Project Became Operational:
Jan 1994
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Green Lights Program
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/1/99
11:17:00

Reporting Year: 1998

Cinergy Corp.
Commercial/Industrial Lighting Rebate Program

Part II. Specific Project Information

1. Project Type:
Lighting and lighting control
2. Load Shape Effects:
Energy efficiency
3. Sector(s) of Energy User(s) Affected by Project
Commercial
Industrial
4. Project Scale:
Full-Scale/Commercial
5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity	1995	1996	1997	1998
Electricity	megawatt hours		-61422	-82297	-90397	-100951

6. Project Description:
Commercial/Industrial Lighting Rebate Program
The C/I Lighting Rebate Program provides incentives for the installation of high efficiency lighting systems. The program targets commercial buildings or office spaces with opportunities for efficient lighting retrofits, specifically, the replacement of standard fluorescent lighting systems with T8 fluorescent systems. The program has been expanded to include the replacement of exit signs with either compact fluorescent or LED units, and the installation of occupancy sensors. In addition to rebates, the program offers pre- and post-installation reviews, customer and trade ally educational seminars, and technical assistance.

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
 Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

6/1/99
 11:17:01

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
 Commercial/Industrial Lighting Rebate Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995				1997		1998		Accuracy	Emission Reductions in Future Years	
			Physical Quantity	Annual Average	Number of Years								
Carbon Dioxide	Direct	short tons	66704	89375	98171	109633	High	381,100.0	20				

Reductions

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/10/98
11:17:02

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.
Commercial/Industrial Lighting Rebate Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
Cincinnati Gas & Electric Co., a Cinergy company

2. Reports to Other Agencies:

Government Body	Reference Number
Public Utility Commission of Ohio	IRP
Environmental Protection Agency	

This report contains information on:
Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/1/99
11:17:06

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.
Residential Energy Efficient Lighting Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Residential Energy Efficient Lighting Program
EIA Project ID: 302
3. Location:
U.S. Only
Dispersed: Central and Southern Indiana
4. Date Project Became Operational:
Jan 1991
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases

6/11/98
11:17:07

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

Residential Energy Efficient Lighting Program

Part II. Specific Project Information

- 1. Project Type:**
Lighting and lighting control
- 2. Load Shape Effects:**
Energy efficiency
- 3. Sector(s) of Energy User(s) Affected by Project**
Residential
- 4. Project Scale:**
Full-Scale/Commercial
- 5. Net Change in Energy/Fuel Consumption:**

Fuel or Energy Type	Unit of Measure	Quantity
Electricity	megawatt hours	1995 1996 1997 1998

6. Project Description:

Residential Energy Efficient Lighting Program

This program provides high efficiency lighting opportunities to residential customers at a reduced cost through the use of various product/incentive delivery mechanisms. Generally, the program has been implemented through promotional campaigns, each with a limited life and tailored product/incentive delivery mechanisms, such as mail-in rebates, store coupons, generic coupons, and an 800 number. The objective is to provide energy saving opportunities to residential customers who are unable to participate in other programs and to also improve their awareness in energy efficient lighting.

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases

6/1/98
 11:17:08

Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Residential Energy Efficient Lighting Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995			1996			1997			1998			Emission Reductions in Future Years	
			Physical Quantity	Accuracy	High	Annual Average	Number of Years									
Carbon Dioxide	Direct	short tons	5381		5381		5381		5381		5381		5381		1,270.0	20

Reductions

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/11/98
11:17:09

Reporting Year: 1998

Entity ID: 218

Status: Preliminary

Cinergy Corp.
Residential Energy Efficient Lighting Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

This report contains information on:

Entire Project

2. Reports to Other Agencies:

Government Body

Indiana Utility Regulatory Commission

Reference Number

IRP

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

egawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

6/17/99
11:17:13

Section 3. Energy End Use

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.

Residential Smart Saver & Heat Pump Savings Programs

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Residential Smart Saver & Heat Pump Savings Programs
EIA Project ID: 303
3. Location: U.S. Only
Dispersed: Southwest Ohio & Central and Southern Indiana
4. Date Project Became Operational: Jan 1991
5. Reasons for Project: Voluntary reduction
6. Participation In Voluntary Programs: Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

6/1/99
11:17:14

Section 3. Energy End Use

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.

Residential Smart Saver & Heat Pump Savings Programs

Part I. Specific Project Information

1. Project Type:

Equipment and appliances improvement or replacement
Lighting and lighting control
Heating, ventilation, and air conditioning
Building shell improvement

2. Load Shape Effects:

Energy efficiency

3. Sector(s) of Energy User(s) Affected by Project

Residential

4. Project Scale:

Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit of Measure	Quantity
Electricity	megawatt hours	-43693
		-43693
		-43693
		-43693

Voluntary Reporting of Greenhouse Gases

6/1/99
11:17:14

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.

Residential Smart Saver & Heat Pump Savings Programs

6. Project Description:

Residential Smart Saver Program (PSI Energy)

This program promotes the installation of high efficiency air conditioning and heat pumps (including geothermal) in new and existing single family, multi-family and manufactured homes. It also promotes and installs selected energy efficiency construction practices that exceed the Indiana state building codes. Customers participate in the program as a result of interaction with PSI, a Cinergy Company, sales personnel, builders, dealers and other trade allies.

Requirements for the program include minimum Seasonal Energy Efficiency Rating (SEER) levels for HVAC equipment, minimum insulation levels for building shell and ductwork outside conditioned airspace, and minimum individual room airflow requirements for Smart Saver homes. Infiltration reduction services are performed by PSI contractors to further enhance energy efficiency of the home. Water heater energy efficiency measures (including tank wraps, pipe insulation, shower heads and faucet aerators) are also installed in homes with electric water heating. Incentive levels are set to encourage higher than minimum SEER levels, greater window efficiencies and desuperheater for geothermal heat pumps. Compact fluorescent lamps are also installed as part of the program.

Residential High-Efficiency Heat Pump Rebate Program (Cincinnati Gas & Electric)

The high-efficiency heat pump rebate program (the Heat Pump Savings Plan) offers rebates to residential customers on the purchase of heat pump systems with a Seasonal Energy Efficiency Ratio (SEER) of 12.0 or higher. (The current federal minimum standard for heat pump efficiency is 10.0). A heat pump system is defined as a condenser and coil match as listed in the most recent issue of the Air Conditioning and Refrigeration Institute (ARI) Directory. The program targets customers living in single-family dwellings who already have electric heat and central air conditioning and are replacing existing equipment.

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases

6/1/98
 11:17:16

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Residential Smart Saver & Heat Pump Savings Programs

Part II. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995			1996		1997		1998		EMISSION REDUCTIONS In Future Years	
			Physical Quantity	Accuracy	Annual Average	Number of Years							
Carbon Dioxide	Direct	short tons	47457	High	47457	High	47457	High	47457	High	32,500.0	20	

Reductions

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

Residential Smart Saver & Heat Pump Savings Programs

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy & Cincinnati Gas & Electric

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP
Public Utility Commission of Ohio	IRP

This report contains information on:

Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

egawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218
Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
Commercial Audit/Incentive Program

Part I. General Project Information

- | | | | |
|---------------------|------------------------------------|-----------------------------------------|---------------------|
| 1. Name of Entity: | Cinergy Corp. | 4. Date Project Became Operational: | Jan 1991 |
| 2. Name of Project: | Commercial Audit/Incentive Program | 5. Reasons for Project: | Voluntary reduction |
| EIA Project ID: | 305 | 6. Participation in Voluntary Programs: | Climate Challenge |
| 3. Location: | | | |
| U.S. Only | | | |
| Dispersed: | Central and Southern Indiana | | |

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/1/98
11:17:22

Reporting Year: 1998

Entity ID: 218

Status: Preliminary

Cinergy Corp.
Commercial Audit/Incentive Program

Part II. Specific Project Information

1. Project Type:
Lighting and lighting control
Heating, ventilation, and air conditioning
Motor and motor drive
2. Load Shape Effects:
Energy efficiency
3. Sector(s) of Energy User(s) Affected by Project
Commercial
4. Project Scale:
Full-Scale/Commercial
5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit or Measure	Quantity
Electricity	megawatt hours	-130490
		-5442
		-7513
		-7513

6. Project Description:
Commercial Audit/Incentive Program

This program provides a comprehensive energy audit for qualified facilities (>100kw) as well as optional sales representative/vendor audits. Based on audit results, a sales representative can offer customized incentives to help offset the cost of implementing energy saving measures. Among the niche programs included in this program are the Large Customer/National Account and the New Equipment Programs. The New Equipment Program offers prescriptive incentives for high efficiency lighting, HVAC, and motor applications for both the replacement and new construction markets.

This program was discontinued due to economic reasons in 1997. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

6/1/99
 11:17:22

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Commercial Audit/Incentive Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995				1996		1997		1998		Emission Reductions in Future Years	
			Physical Quantity	Annual Average	Number of Years									
Carbon Dioxide	Direct	short tons	141712	5910	8159	8159	High	231,800.0	20					

Reductions

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp. Commercial Audit/Incentive Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

This report contains information on:

Entire Project

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program was discontinued due to economic reasons in 1997. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases

11:17:28

Schedule II. Project-Level Emissions and Reductions Section 3. Energy End Use

Reporting Year: 1998

Entity ID: 218

Status: Preliminary

Cinergy Corp. Commercial/Industrial Adjustable Speed Drive Plan

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Commercial/Industrial Adjustable Speed Drive Plan
EIA Project ID: 314
3. Location:
U.S. Only Dispersed: Southwest Ohio
4. Date Project Became Operational:
Jan 1994
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases

11:17:29

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp.

Commercial/Industrial Adjustable Speed Drive Plan

Part I. Specific Project Information

- Project Type:**
Motor and motor drive
- Load Shape Effects:**
Energy efficiency
- Sector(s) of Energy User(s) Affected by Project**
Commercial
Industrial
- Project Scale:**
Full-Scale/Commercial
- Net Change in Energy/Fuel Consumption:**

Fuel or Energy Type	Unit of Measure	Quantity	1995	1996	1997	1998
Electricity	megawatt hours		-11285	-11688	-11988	-11988

- Project Description:**
Commercial/Industrial Adjustable Speed Drive Plan
CG&E, a Cinergy Company, offers financial incentives to encourage the use of adjustable speed drives (ASDs). ASDs conserve energy by controlling the speed of AC induction motors to match the varying load of the process or system.

The program targets new and existing commercial and industrial facilities with opportunities for AC induction motor control. Usually this involves situations where electronic ASDs eliminate the need for mechanical or hydraulic drives (clutches, gears, pulleys, valves, dampers, vanes).

In addition to financial incentives, the program offers customers and trade ally educational seminars, technical assistance, monitoring of energy savings, and power quality diagnosis if required.

This program was discontinued due to economic reasons in 1997. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

6/1/99
 11:17:30

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Commercial/Industrial Adjustable Speed Drive Plan

Part II. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995				1996				1997				1998				Emissions Reductions in Future Years	
			Physical Quantity	Annual Average	Number of Years															
Carbon Dioxide	Direct	short tons		12255		12693		13018		13018		13018		13018		20,300.0	20			

Reductions

Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

Reporting Year: 1998

Entity ID: 218

Status: Preliminary

Cinergy Corp.
Commercial/Industrial Adjustable Speed Drive Plan

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
Cincinnati Gas & Electric, a Cinergy company

2. Reports to Other Agencies:

Government Body	Reference Number
Public Utility Commission of Ohio	IRP

This report contains information on:

Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086). This program was discontinued in 1996. It is assumed that the changes which were in place at that time continue to deliver energy savings.

This program was discontinued due to economic reasons in 1997. It is assumed that the changes that are in place continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

6/1/99
11:17:35

Section 3. Energy End Use

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
Green Lights Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Green Lights Program
EIA Project ID: 310
3. Location:
U.S. Only
Dispersed: Southwestern Ohio & Central and Southern Indiana
4. Date Project Became Operational:
Jan 1992
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Green Lights Program
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6. . . .
11:17:36

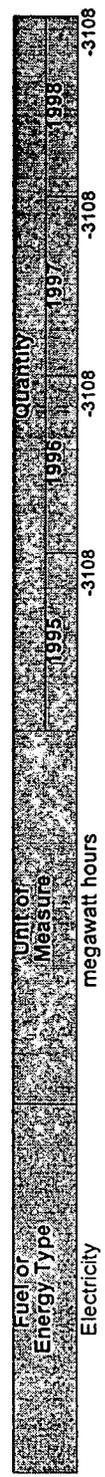
Entity ID: 218
Status: Preliminary
Reporting Year: 1998

Cinergy Corp.
Green Lights Program

Part II. Specific Project Information

- 1. Project Type:
Lighting and lighting control
- 2. Load Shape Effects:
Energy efficiency
- 3. Sector(s) of Energy User(s) Affected by Project
Commercial
Industrial
- 4. Project Scale:
Full-Scale/Commercial

5. Net Change in Energy/Fuel Consumption:



6. Project Description:
Green Lights Program

The Green Lights Memorandum of Understanding is a voluntary agreement between PSI, CG&E, and the U.S. Environmental Protection Agency in an effort to promote and develop energy efficient lighting. PSI and CG&E desire to convert the lighting in their facilities to energy efficient lighting while maintaining quality and cost effectiveness.

This program has been inactive due changing economic conditions. The program is reevaluated on a regular basis. It is assumed that the changes which are in place continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/11/99
 11:17:37

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Green Lights Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995				1996				1997				1998				Accuracy	Emission Reductions in Future Years
			Physical Quantity		Physical Quantity		Physical Quantity		Physical Quantity		Physical Quantity		Physical Quantity		Physical Quantity		Annual Average	Number of Years		
Carbon Dioxide	Direct	short tons	3375		3375		3375		3375		3375		3375		3375				High	5,000.0

Reductions

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/11/98
11:17:37

Reporting Year: 1998

Entity ID: 218

Status: Preliminary

Cinergy Corp.
Green Lights Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy & Cincinnati Gas & Electric Co.

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP
Public Utility Commission of Ohio	IEP
Environmental Protection Agency	

This report contains information on:

Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program has been inactive due changing economic conditions. The program is reevaluated on a regular basis. It is assumed that the changes which are in place continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases

04/19/99
11:17:42

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp. Industrial Efficiency Improvement & Energy Awareness Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Industrial Efficiency Improvement & Energy Awareness Program
EIA Project ID: 307
3. Location:
U.S. Only
Dispersed: Central and Southern Indiana
4. Date Project Became Operational:
Jan 1992
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

6/1/99
11:17:43

Section 3. Energy End Use

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.

Industrial Efficiency Improvement & Energy Awareness Program

Part II. Specific Project Information

- Project Type:**
Equipment and appliances improvement or replacement
Lighting and lighting control
Heating, ventilation, and air conditioning
Motor and motor drive
- Load Shape Effects:**
Energy efficiency
- Sector(s) of Energy User(s) Affected by Project**
Industrial
- Project Scale:**
Full-Scale/Commercial
- Net Change in Energy/Fuel Consumption:**

Fuel or Energy Type	Unit or Measure	Quantity	1995	1996	1997	1998
Electricity	megawatt hours		-335277	-335277	-335277	-335277

Project Description:

Industrial Efficiency Improvement & Energy Awareness Programs

For medium and large industrial customers, these programs provide customized energy studies and tailored incentives to encourage installation of efficient equipment. For small industrial customers, a program is designed to stimulate the adoption of efficiency improvement technologies and techniques by providing information and education on measures such as motor drives, lighting, HVAC and process-system improvement.

This program was discontinued due to economic reasons in 1996. It is assumed that the changes that are in place continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Industrial Efficiency Improvement & Energy Awareness Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995				1996				1997				1998				Emission Reductions in Future Years	
			Physical Quantity	Annual Average	Number of Years															
Carbon Dioxide	Direct	short tons	364111	364111	364111	364111	364111	364111	364111	364111	364111	364111	364111	364111	364111	364111	621,400.0	20		

Reductions

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

6/1/99
11:17:45

Section 3. Energy End Use

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.
Industrial Efficiency Improvement & Energy Awareness Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSJ Energy, a Cinergy company

2. Reports to Other Agencies:

Government Body Reference Number
Indiana Utility Regulatory Commission IRP

This report contains information on:

Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (Mwh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Reporting Year: 1998

Entity ID: 218

Status: Preliminary.

Cinergy Corp.
Residential Seal-Up & Low-Income Efficiency Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Residential Seal-Up & Low-Income Efficiency Progra
EIA Project ID: 304
3. Location:
U.S. Only
Dispersed: Central and Southern Indiana
4. Date Project Became Operational:
Jan 1991
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

6/1/98
 11:17:50

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.
Residential Seal-Up & Low-Income Efficiency Program

Part II. Specific Project Information

1. Project Type:
 Lighting and lighting control
 Heating, ventilation, and air conditioning
 Building shell improvement
2. Load Shape Effects:
 Energy efficiency
3. Sector(s) of Energy User(s) Affected by Project
 Residential
4. Project Scale:
 Full-Scale/Commercial
5. Net Change in Energy/Fuel Consumption:

Fuel or Energy Type	Unit or Measure	Quantity	1996	1997	1998
Electricity	megawatt hours		-20475	-22169	-22170
					-22169

Voluntary Reporting of Greenhouse Gases

11:17:50

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

Residential Seal-Up & Low-Income Efficiency Program

6. Project Description:

Residential Seal-Up Program

This program targets customers with both electric water heating and space heating by promoting the installation of energy saving devices such as faucet aerators, shower heads, water heater jackets and compact fluorescent light bulbs. Customer homes are also tested for infiltration, weatherized with caulking, outlet gaskets, and door sweeps; and ductwork is sealed with mastic when accessible. PSI, a Cinergy Company, employs a contractor to install the energy saving devices. Customers pay \$30 to participate in the program. At the time the contractor is at the home, the customer has the option of purchasing compact fluorescent light bulbs at a reduced rate of \$5 each, with a limit of 15.

This program was discontinued due to economic reasons in 1996. It is assumed that the changes that are in place continue to reduce energy requirements.

Residential Low-Income Efficiency Program

This program provides the installation of energy saving devices to PSI, a Cinergy Company, residential customers who qualify for weatherization or heating bill assistance as part of state or federal programs. Program measures include faucet aerators, shower heads, water heater jackets and up to three compact fluorescent light bulbs. Customers with electric space heating also receive caulking, weather-stripping and duct mastic to reduce infiltration in the home. There is no charge to the customer for this program.

This program was discontinued due to economic reasons in 1996. It is assumed that the changes that are in place continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Residential Seal-Up & Low-Income Efficiency Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Emissions				Emission Reductions in Future Years		
			1995	1996	1997	1998	Annual Average	Number of Years	
			Physical Quantity	Physical Quantity					
Carbon Dioxide	Direct	short tons	22236	24078	24077	24077	High	46,700.0	20
Reductions									

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Reporting Year: 1998

Entity ID: 218

Status: Preliminary

Cinergy Corp.
Residential Seal-Up & Low-Income Efficiency Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

This report contains information on:
Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This project was discontinued in 1996, however, it is assumed that the measures that were installed are still in place and achieving the same energy savings as reported in 1996.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/1/99
11:18:05

Reporting Year: 1998

Entity ID: 218

Status: Preliminary.

Cinergy Corp.
Commercial/Industrial Peak Reduction Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Commercial/Industrial Peak Reduction Program
EIA Project ID: 308
3. Location:
U.S. Only
Dispersed: Central and Southern Indiana
4. Date Project Became Operational:
Jan 1992
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.
Commercial/Industrial Peak Reduction Program

Part I. Specific Project Information

- 1. Project Type:**
Load control
- 2. Load Shape Effects:**
Peak clipping
- 3. Sector(s) of Energy User(s) Affected by Project**
Commercial
Industrial
- 4. Project Scale:**
Full-Scale/Commercial
- 5. Net Change in Energy/Fuel Consumption:**

Fuel or Energy Type	1995	1996	1997	1998
Electricity	-394	-394	-394	-394

megawatt hours

- 6. Project Description:**
Commercial/Industrial Peak Reduction Program

This program offers credits to commercial or industrial customers who volunteer to reduce their peak-period usage on request from PSI. The amount of the reduction is agreed upon beforehand based on a coincident peak analysis. Upon notification from PSI, demand is reduced by either starting up on-site generators or turning off large loads or groups of similar loads. Customers have the option of summer or winter interruptions. Customers may also select day before notification or thirty minute notification from PSI. Credits vary depending upon the option selected.

This program was discontinued due to economic reasons in 1995. It is assumed that the changes that are in place continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/1/98
 11:18:10

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Commercial/Industrial Peak Reduction Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995				1996				1997				1998				Emission Reductions in Future Years	
			Physical Quantity	Annual Average	Number of Years															
Carbon Dioxide	Direct	short tons		428	428	428	428	428	428	428	428	428	428	428	428	428	428	5,600.0	20	

Voluntary Reporting of Greenhouse Gases

11:18:12

Schedule II. Project-Level Emissions and Reductions Section 3. Energy End Use

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp. Commercial/Industrial Peak Reduction Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

This report contains information on:
Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

egawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086). The offsetting increase in indirect emissions resulting from customers' use of on-site generators is not estimated.

This program was discontinued due to economic reasons in 1995. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp.

Thermal Energy (Cool) Storage Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Thermal Energy (Cool) Storage Program
EIA Project ID: 312
3. Location:
U.S. Only
Dispersed: Southwest Ohio
4. Date Project Became Operational:
Jan 1994
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases

11:18:34

Schedule II. Project-Level Emissions and Reductions Section 3. Energy End Use

Reporting Year: 1998

Cinergy Corp.

Thermal Energy (Cool) Storage Program

Part II. Specific Project Information

- 1. Project Type:**
Load control
Heating, ventilation, and air conditioning
- 2. Load Shape Effects:**
Load shifting
- 3. Sector(s) of Energy User(s) Affected by Project**
Commercial
Industrial
- 4. Project Scale:**
Full-Scale/Commercial
- 5. Net Change in Energy/Fuel Consumption:**

Fuel or Energy Type	Unit or Measure	Quantity	1995	1996	1997	1998
Electricity	megawatt hours		-1823	-2310	-17453	-17453

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp.

Thermal Energy (Cool) Storage Program

6. Project Description:

Thermal Energy (Cool) Storage Program

Thermal energy storage, or TES, off-peak air conditioning is designed for the space cooling needs of the commercial and industrial market. Thermal energy storage relies on a storage medium to store cooling capacity produced during utility-defined off-peak hours. This stored cooling capacity is then used to meet the facility's cooling needs during utility-defined on-peak hours.

The target market for this program includes schools, churches, and commercial or industrial office buildings. This includes both the new construction and retrofit of buildings that have relatively large cooling needs and have operating hours that are conducive to ice making during off-peak hours. Industrial process applications represent additional market potential for TES system.

The Thermal Energy Storage Program is designed to stimulate the market and help facility owners over the obstacles typically associated with the technology:

- 1) first cost premium over conventional HVAC systems
- 2) perception that technology is new and/or complex
- 3) proven reliability
- 4) equipment malfunction consequences.

The features of the program include: 1) financial incentives to help offset a portion of the initial investment of economically viable projects and to compensate engineering design firms for additional investigative and design time; 2) Time-Of-Use Rates/Load Management Rider which offers a fifteen hour off-peak window for load management purposes; 3) Thermal Energy Storage Rider (Ride TES) to offer participating customers protection from higher demand and ratchet charges which result from operational errors or equipment failures; 4) TES Operators; Group to provide support and peer consultation to facilities managers, engineers or technicians responsible for operating thermal storage systems; and 5) utility technical assistance in application assessments to ensure proper operation and understanding of the thermal storage equipment.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/11/98
11:18:38

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.
Thermal Energy (Cool) Storage Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
Cincinnati Gas & Electric Co., a Cinergy company

2. Reports to Other Agencies:

Government Body	Reference Number
Public Utility Commission of Ohio	IRP

This report contains information on:

Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

It is recognized that this program is a load shifting program and some direct emissions occur as a result of the load shifting from on-peak to off-peak. These emissions are not reflected in this Form because the CO2 reductions reported herein are due to efficiency gains in generation due to the load shifting and reflect emission reductions due to fuel savings resulting from the gained efficiencies.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

6/1/99
11:18:51

Section 3. Energy End Use

Entity ID: 218
Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
Residential Wrap-Up Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Residential Wrap-Up Program
EIA Project ID: 301
3. Location:
U.S. Only
Dispersed: Central and Southern Indiana
4. Date Project Became Operational:
Jan 1991
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 3. Energy End Use

6/1/98
 11:18:54

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Residential Wrap-Up Program

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Physical Quantity				Accuracy	Emissions/Reductions in Future Years	
			1995	1996	1997	1998		Annual Average	Number of Years
Carbon Dioxide	Direct	short tons	8910	8910	8910	High	13,700.0	20	

Reductions

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 3. Energy End Use

6/1/99
11:18:55

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
Residential Wrap-Up Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission	IRP

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

This report contains information on:

Entire Project

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants' facilities; makes engineering estimates of the amount of energy conserved by a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

egawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program was discontinued due to economic reasons in 1996. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases

6/1/98
11:19:02

Schedule II. Project-Level Emissions and Reductions Section 3. Energy End Use

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp. Commercial Direct Lighting

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Commercial Direct Lighting
EIA Project ID: 306
3. Location:
U.S. Only: Central and Southern Indiana
Dispersed: Central and Southern Indiana
4. Date Project Became Operational:
Jan 1992
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Green Lights Program
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

6/1/98
 11:19:03

Section 3. Energy End Use

Entity ID: 218
 Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
Commercial Direct Lighting

Part II. Specific Project Information

1. **Project Type:**
Lighting and lighting control
2. **Load Shape Effects:**
Energy efficiency
3. **Sector(s) of Energy User(s) Affected by Project**
Commercial
Industrial
4. **Project Scale:**
Full-Scale/Commercial
5. **Net Change in Energy/Fuel Consumption:**

Fuel or Energy Type	Unit of Measure	Quantity	1995	1996	1997	1998
Electricity	megawatt hours		-22297	-22297	-22297	-22297

6. **Project Description:**
Commercial Direct Lighting Installation Program

This program encourages small commercial customers using less than 15,000 kWh annually to make energy-efficient lighting improvements. The program promotes fluorescent tubes and ballasts (in combination, not individually), screw-in and hard-wired compact fluorescent lamps, wall-mounted occupancy sensors and exit light replacement kits. This program was discontinued due to economic reasons in 1995. It is assumed that the changes that are in place continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 3. Energy End Use

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp. Commercial Direct Lighting

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This project was undertaken as part of a utility-sponsored program, sponsored by:
PSI Energy, a Cinergy company

This report contains information on:
Entire Project

2. Reports to Other Agencies:

Government Body	Reference Number
Indiana Utility Regulatory Commission Environmental Protection Agency	IRP

5. Estimation Method:

Cinergy's Retail Market Planning Dept. tracks overall program impacts through end-use meter placement at a sampling of program participants facilities; makes engineering estimates of the amount of energy conserved by the a specific program based on the number of participants and average end-user measurements of customer participants in similar programs implemented by utilities with similar demographics to Cinergy customers.

Megawatt hours (MWh) were converted to tons of CO2 by using the conversion factor in EIA's Instructions for Form EIA-1605, Appendix C. "Adjusted Electricity Emission Factors by State" for Indiana (1.086).

This program was discontinued due to economic reasons in 1995. It is assumed that the changes which were in place at that time continue to reduce energy requirements.

Voluntary Reporting of Greenhouse Gases

11:19:16

Schedule II. Project-Level Emissions and Reductions Section 4. Transportation and Off-Road Vehicles

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp. Fleet Alternative Fuels

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Fleet Alternative Fuels
EIA Project ID: 401
3. Location:
U.S. Only
Dispersed: Southwest Ohio & Central and Southern Indiana
4. Date Project Became Operational:
Jan 1991
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 4. Transportation and Off-Road Vehicles

01/13/99
 11:19:17

Reporting Year: 1998

Cinergy Corp.
Fleet Alternative Fuels

Part II. Specific Project Information

1. Project Type:
 Operation of alternative fuel vehicles (AFVs)
 Infrastructure improvement

2. Mode:
 Road

3. Fuel(s) Saved or Displaced:

Fuel or Energy Type	Unit of Measure	1995	1996	1997	1998
Motor Gasoline	gallons	94151	94151	94151	94151

4. Fuel Switching:

Fuel or Energy Type	Unit of Measure	1995	1996	1997	1998
Propane	gallons	114628	114628	114628	114628
Natural Gas(Pipeline)	thousand standard cubic feet	1306	1306	1306	1306

Part II. Specific Project Information

5. Project Scale:
 Full-Scale/Commercial

6. Project Size:

Unit of Measure	1995	1996	1997	1998
vehicles	131	131	131	131

Voluntary Reporting of Greenhouse Gases

6/11/99
11:19:17

Schedule II. Project-Level Emissions and Reductions

Section 4. Transportation and Off-Road Vehicles

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

Fleet Alternative Fuels

7. Project Description:

The Cinergy Corp. operates a certain number of its vehicles using the alternative fuels propane and natural gas. The company has one propane filling station and currently has three natural gas filling stations (two open to the public). The natural gas vehicles are dual fuel vehicles - natural gas and gasoline. This is due to the fact that compressed natural gas is used and has a limited volume which limits vehicle range.

Propane is used in passenger vehicles, light trucks, and heavy trucks. Compressed natural gas is used in passenger vehicles and light trucks. The company has an aggressive program to provide technical assistance and compressor equipment to other fleet operators, and has opened a commercial conversion facility for the general public.

Emissions reported for this project are emissions for the entire vehicle fleet, based on motor gasoline, diesel, propane and natural gas consumption.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 4. Transportation and Off-Road Vehicles

6/1/99
 11:19:20

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Fleet Alternative Fuels

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Emissions				Emission Reductions	
			1995	1996	1997	1998	Accuracy	Number of Years
			Physical Quantity	Physical Quantity	Physical Quantity	Physical Quantity		Annual Average
Carbon Dioxide	Direct	short tons	804.86	804.86	804.86	804.86	High	
Carbon Dioxide	Direct	short tons	119.75	119.75	119.75	119.75	High	

Emissions

Carbon Dioxide

Direct

short tons

804.86

804.86

804.86

804.86

High

Reductions

Carbon Dioxide

Direct

short tons

119.75

119.75

119.75

119.75

High

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 4. Transportation and Off-Road Vehicles

6/1/99
11:19:39

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.
Fleet Alternative Fuels

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

5. Estimation Method:

The following were the emission rates used, all from Instructions, Appendix B:

19.641 lb CO₂/gal gasoline
12.669 lb CO₂/gal propane
120.593 lb CO₂/Mcf natural gas

3. Multiple Reporting:

This report contains information on:
Entire Project

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 5. Waste Treatment and Disposal--Methane

11:20:03

Reporting Year: 1998

Entity ID: 218

Status: Preliminary

Cinergy Corp.
Rumpke Landfill Gas Recovery

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
 2. Name of Project: Rumpke Landfill Gas Recovery
EIA Project ID: 502
 3. Location:
U.S. Only
Facility Name and Address:
Rumpke Sanitary Landfill
10777 Hughes Rd.
Cincinnati, OH 45210-
 4. Date Project Became Operational:
Jan 1991
 5. Reasons for Project:
Voluntary reduction
 6. Participation In Voluntary Programs:
Landfill Methane Outreach Program
Climate Challenge
- Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

07/99
 11:20:04

Schedule II. Project-Level Emissions and Reductions Section 5. Waste Treatment and Disposal - Methane

Entity ID: 218 Reporting Year: 1998
 Status: Preliminary

Cinergy Corp. Rumpke Landfill Gas Recovery

Part II. Specific Project Information

1. Type of Facility:
 Landfill
2. Type of Waste Handled:
 Municipal solid waste including yard waste
 Industrial solid waste
3. Project Type:
 Biogas recovery: methane recovery for energy
5. Biogas Recovered and Use:

Description	Quantity		
	1995	1996	1997
total vol of gas recovered	855023	1090496	1087852
avg gas heat content	1000	1000	1000
vol gas sold offsite	855023	1090496	1087852

6. Project Description:
 The Cincinnati Gas & Electric Company (CG&E), a Cinergy Company, contracts with Air Products, Inc. to take recovered methane gas from the Rumpke Inc. landfill. Air Products owns and operates a gas cleaning process that enhances the recovered methane gas and increases the Btu content to approximately equal that of pipeline quality natural gas. CG&E takes possession of the methane gas at the landfill and places it directly into its natural gas distribution system. Gas is recovered at a rate of 2,000 to 3,000 mcf per day. The methane is metered at the gas cleaning plant. CG&E has a long term contract with Air Products to supply the methane gas.

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions
 Section 5. Waste Treatment and Disposal--Methane

09
 11:20:05

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Rumpke Landfill Gas Recovery

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	Emissions				Emissions Reductions		
			1995	1996	1997	1998	Accuracy	Future Years	
			Physical Quantity	Physical Quantity	Physical Quantity	Physical Quantity	Annual Average	Number of Years	
Methane	Indirect	short tons	18075	23053	22814	24770	High	40,000.0	10

Reductions

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 5. Waste Treatment and Disposal--Methane

6/7/99
11:20:06

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.
Rumpke Landfill Gas Recovery

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:
Per contractual agreement, Cinergy will be the sole reporter of this project.

2. Reports to Other Agencies:

Government Body
Public Utility Commission of Ohio

This report contains information on:

Entire Project

Reference Number
Gas LTR

5. Estimation Method:

Landfill gas is collected and passed through a series of filters before it is injected into The Cincinnati Gas & Electric natural gas system. The gas is distributed to primarily residential customers. The amount of landfill gas supply is metered.

Factors:

Methane density 42.28 lb/Mcf

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 5. Waste Treatment and Disposal—Methane

6/1/99
11:20:14

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
Danville, IN Electric Generation

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Danville, IN Electric Generation
EIA Project ID: 501
3. Location:
U.S. Only
Facility Name and Address:
Bio-Energy Partners
3003 Butler Field Road
Oakbrook, IL 60521-

4. Date Project Became Operational:
Oct 1994
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Landfill Methane Outreach Program
Climate Challenge
- Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

11:20:16

Schedule II. Project-Level Emissions and Reductions
 Section 5. Waste Treatment and Disposal - Methane

Reporting Year: 1998

Entity ID: 218

Status: Preliminary

Cinergy Corp.
 Danville, IN Electric Generation

Part II. Specific Project Information

1. Type of Facility:

Landfill

2. Type of Waste Handled:

Municipal solid waste including yard waste
 Industrial solid waste

3. Project Type:

Biogas recovery: methane recovery for energy

5. Biogas Recovered and Use:

Description	Quantity		
	1995	1997	1998
total vol of gas recovered thousand standard cubic feet	229971	328818	309584
avg gas heat content British thermal units per standard cubic electricity generated kilowatt hours	500 17690082	500 25278273	500 23814161

6. Project Description:

Bio-Energy Partners, a subsidiary of Waste Management, Inc., operates a small generating unit at the Danville, IN landfill which uses recovered landfill methane gas in a lean burn engine to generate electricity. The facility generates an average of 1.5 million kWh per month. PSI Energy, a Cinergy company, buys the electricity from Bio-Energy Partners and puts the electricity into the PSI Energy grid.

The project has a dual effect in that it directly reduces Cinergy's greenhouse gas emissions and has an indirect effect of reducing methane emissions from the Danville landfill. Methane emissions are reduced at the landfill offsetting Cinergy's methane gas emissions from its natural gas distribution system. Also, the electricity generated by the project reduces Cinergy's need to generate electricity in its coal fired generating plants, thereby reducing Cinergy's CO2 emissions from the burning of coal.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 5. Waste Treatment and Disposal--Methane

11:20:18

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
 Danville, IN Electric Generation

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995-1998 Physical Quantity				Emission Reductions in Future Years	
			1995	1996	1997	1998	Annual Average	Number of Years
Carbon Dioxide	Indirect	short tons	13866	20437	19814	18867	High	
Methane	Indirect	short tons	4292.5	6350	6959	6556	High	5,000.0 20
Carbon Dioxide	Direct	short tons	18139	26735	25920	24419	High	5,000.0 20

Voluntary Reporting of Greenhouse Gases

6/11/99
11:20:19

Schedule II. Project-Level Emissions and Reductions Section 5. Waste Treatment and Disposal--Methane

Entity ID: 218
Status: Preliminary.

Reporting Year: 1998

Cinergy Corp. Danville, IN Electric Generation

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:

Per contractual arrangement, Cinergy is the sole reporter of this project.

This report contains information on:

Entire Project

5. Estimation Method:

Calculations involve:

1. The amount energy required to generate 1 kWh of electricity in the type of engines being used at the landfill to drive the turbine. Engine and turbine efficiencies are used in the calculations.
2. The indirect CO2 emissions are calculated for the facility at the Danville landfill using an equivalent amount on methane to generate the electricity metered at the facility, using the energy efficiencies of the lean burn engines and turbines.
3. The indirect methane emissions reductions are calculated using the number of BTUs necessary to generate the amount of electricity metered at the facility using the efficiencies of the lean burn engines and turbines, and assuming a BTU content of 500 BTUs per cubic foot for the landfill gas recovered.
4. The direct CO2 reductions are calculated using the amount of electricity metered at the facility and assuming that that amount of electricity was not generated on the PSI generating system, and that an equivalent amount of coal was not burned in the PSI system.

Factors:

Methane density	42.28 lb/Mcf
Methane emission rate	116.376 lb CO2/Mcf
Coal emission rate	1.912 lb CO2/kWh

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 7. Oil and Natural Gas Systems and Coal Mining--Methane

6/...J
11:20:31

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp. AFC Electric Generation

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
 2. Name of Project: AFC Electric Generation
EIA Project ID: 1004
 3. Location:
U.S. Only
Facility Name and Address:
Alternate Fuels Corporation
15 Eagle Street, Suite 101
Englewood, NJ 07631.
 4. Date Project Became Operational:
Jun 1995
 5. Reasons for Project:
Voluntary reduction
 6. Participation in Voluntary Programs:
Climate Challenge
- Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

6/1/99
 11:20:32

Schedule II. Project-Level Emissions and Reductions

Section 7. Oil and Natural Gas Systems and Coal Mining - Methane

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

AFC Electric Generation

Part II. Specific Project Information

1. Project Location:

Other: Methane recovery from closed and abandoned underground coal mine.

2. Project Type:

Gas recovery: Coal mine degasification via other: Wells drilled into closed coal mine to recover methane gas.

4. Gas Recovered and Use:

Description	Unit of Measure	1995	1996	1997	1998
Electricity	kilowatt hours	1448126	4038703	7151631	4283004
Total Volume	thousand standard cubic feet	18826	52503	92971	55679
Average Heat Content	British thermal units	1000000	1000000	1000000	1000000

5. Project Description:

Alternate Fuels Corporation (AFC) operates a small generating unit in western Indiana that uses recovered methane gas from a closed and abandoned deep coal mine. The facility generates an average of 300,000 kWh per month. PSI Energy, a Cinergy company, buys the electricity from AFC and puts the electricity into their grid.

The project has the dual effect in that it directly reduces Cinergy's greenhouse gas emissions and has an indirect effect of reducing methane emissions from the coal mine. Methane emissions are reduced at the coal mine offsetting Cinergy's methane gas emissions from its natural gas distribution system. Also, the electricity generated by the project reduces Cinergy's need to generate electricity in its coal fired generating plants, thereby reducing Cinergy's CO2 emissions from the burning of coal.

Voluntary Reporting of Greenhouse Gases

11:20:33

Schedule II. Project-Level Emissions and Reductions

Section 7. Oil and Natural Gas Systems and Coal Mining--Methane

Reporting Year: 1998

Entity ID: 218
 Preliminary

**Cinergy Corp.
 AFC Electric Generation**

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995				1996				1997				1998				Emissions Reductions in Future Years	
			Physical Quantity	Annual Average	Number of Years															
Carbon Dioxide	Indirect	short tons		1013	2824	5808														
Methane	Indirect	short tons		306	984	1969												1,000.0	10	
Carbon Dioxide	Direct	short tons		1384	3862	7333												4,000.0	10	

Voluntary Reporting of Greenhouse Gases

Schedule II. Project-Level Emissions and Reductions

Section 7. Oil and Natural Gas Systems and Coal Mining--Methane

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.

AFC Electric Generation

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:
Alternate Fuels Corporation

This report contains information on:

Entire Project

5. Estimation Method:

Calculations involve:

1. The amount energy required to generate 1 kWh of electricity in the type of engines being used at the coalmine to drive the turbine. Engine and turbine efficiencies are used in the calculations.
2. The indirect CO2 emissions are calculated for the burning of methane at the facility using an equivalent amount on methane to generate the electricity metered at the facility, and using the engine and turbine energy efficiencies.
3. The indirect methane emissions reductions are calculated using the number of BTUs necessary to generate the amount of electricity metered at the facility using the efficiencies of the engine and turbine, and assuming a BTU content of 1,000 BTUs per cubic foot for the recovered coal mine methane gas.
4. The direct CO2 reductions are calculated using the amount of electricity metered at the facility and assuming that that amount of electricity was not generated on the PSI generating system, and that an equivalent amount of coal was not burned in the PSI system.

Factors:

Methane density	42.28 lb/Mcf
Methane emission rate	116.376 lb CO2/Mcf
Coal emission rate	1.912 lb CO2/kWh

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

6/1/99
11:20:41

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
UtiliTree - Rio Bravo Carbon Sequestration

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
 2. Name of Project: UtiliTree - Rio Bravo Carbon Sequestration
EIA Project ID: 1006
 3. Location:
Foreign Operations Only:
Belize
 4. Date Project Became Operational:
Jan 1995
 5. Reasons for Project:
Voluntary reduction
 6. Participation in Voluntary Programs:
Climate Challenge
United States Initiative on Joint Implementation
- Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

11:20:42

Schedule II. Project-Level Emissions and Reductions
 Section 8. Carbon Sequestration

Reporting Year: 1998

Cinergy Corp.
 UtiliTree - Rio Bravo Carbon Sequestration

Entity ID: 218
 Status: Preliminary

Part II. Specific Project Information

1. Project Type:
Forest preservation:
2. Forest Composition:
Forest Composition of the Activity: See project description.
3. Historic Land Use:
Forest, forest type: See project description.
4. Reference Case Land Use:
Forest, forest type: See project description.

5. Project Characteristics:

Size Measure	Unit of Measure	Quantity	1995	1997	1998
Mean Age of Stands	years				
Harvest Age	years				
Timber Productivity	cubic feet volume growth per acre				
Trees Planted	number				
Area Affected	acres	13843	0	0	0

Voluntary Reporting of Greenhouse Gases

6/7/99
11:20:42

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

UtiliTree - Rio Bravo Carbon Sequestration

6. Project Description:

Cinergy Corp. is a member of the UtiliTree Carbon Company which is a non-profit corporation formed through the Edison Electric Institute. UtiliTree Carbon Company has a total of 40 electric utility members. UtiliTree Carbon Company has selected several diverse forestry projects to manage greenhouse gases. One of those projects is the Rio Bravo Carbon Sequestration Pilot Project which is a U.S. Initiative on Joint Implementation (USIJI) Project.

The Rio Bravo Carbon Sequestration Pilot Project is being undertaken through a partnership of Wisconsin Electric, Detroit Edison, PacifiCorp, and UtiliTree Carbon Company (the "Financial Participants"), The Nature Conservancy, and a Belizean NGO, Program for Belize (PFB). In addition to their financial role, the Financial Participants are closely involved in project design and support in project implementation. The project was accepted by USIJI on January 31, 1995.

The project area is located in northwestern Belize, Central America, and centered on the eastern land parcels of the Rio Bravo Conservation and Management Area. The project consists of two components. Component A includes the purchase of a 13,843 acre parcel of endangered forest threatened with deforestation to facilitate agricultural conversion. The purchase of this parcel will link two forested Rio Bravo Properties owned by PFB in the northwestern corner of Belize. Component B establishes a sustainable forestry management program on the entire Rio Bravo Conservation and Management Area which includes Component A, as well as the other land parcels already held by PFB. Component B will implement improved forest management techniques and timber processing and marketing approaches, and is designed to optimize carbon sequestration in a 120,000 acre area.

This report covers only Component A of the project, completed in December, 1995. Subsequent reports will include sequestration for both Components A and B. It also is limited to CO2 reporting only. Although it is recognized that the project may influence emissions of other greenhouse gases, no reliable data are available at this time.

The carbon and/or CO2 sequestered by the project is divided equally among the Financial Participants. UtiliTree participants are assigned shares of carbon or CO2 proportional to their investment in UtiliTree Carbon Company. This report covers only Cinergy's portion of UtiliTree's share of the carbon or CO2 reported by PFB to UtiliTree Carbon Company. Cinergy's UtiliTree portion of the Rio Bravo Carbon Sequestration Pilot Project represents 4.5% of UtiliTree's share of carbon or CO2.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 8. Carbon Sequestration

Dr. J
 11:20:43

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
UtiliTree - Rio Bravo Carbon Sequestration

Part III. Sequestration

Gas	Type	Unit of Measure	1998				Emissions Reductions in Future Years	
			Physical Quantity	Accuracy	Annual Average	Number of Years		
Carbon	Total Storage	short tons	1937	3874	5811	High	7748	High
	Annual Increase	short tons	1937	1937	1937	High	1937	High
	Total Storage	short tons	7108	14215	21323	High	28430	High
	Annual Increase	short tons	7108	7107	7108	High	7107	High

Sequestration

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

6
11:20:44

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp.
UtiliTree - Rio Bravo Carbon Sequestration

Part IV. Project Evaluation

1. Reference Case:
Modified - Other (See Estimation Method)
3. Multiple Reporting:
Other entities that could report on the effects of this project:
None
- This report contains information on:
A portion of the project 0.05

2. Reports to Other Agencies:
Government Body Reference Number
USJI

5. Estimation Method:

The project reference case is based on the scenario that, but for the project, the use of the land purchased under Component A would have changed from traditional logging to intensive mechanized agriculture. It assumes that, following purchase by mechanized farming interests, open water and herbaceous swamps would remain unaltered, and all other lands would be converted to agriculture over a 5 year period. The historic trend of clearance from forest to intensive agriculture in the project area is documented.

The carbon sequestration estimates were based upon actual measurements from 58 permanent plots in Component A of the Reo Bravo project in 1996. Component A includes nine areas which include four different forest community types and totals 13,843 acres.

The calculation model used to determine carbon offsets was:

$$\text{NETC} = \text{Cp} - \text{Cag} - \text{Cal}$$

Where:

NETC = net carbon sequestration
Cp = carbon stocks in the preserved area
Cag = carbon stocks in areas converted to agriculture
Cal = the amount of carbon returned to the atmosphere due to improved logging practices.

The carbon offset for Year 1 is $\text{NETC} = (\text{Cp} - \text{Cag}) / 5$ because there has been no logging since the project began. Only above ground biomass carbon and soil carbon were included. Future analysis of the litter and herbaceous vegetation, and below ground biomass should yield additional sequestered carbon.

Communities included in Component A include swamp forest, upland burned areas, uplands, and upland mixed with transition to bajo.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

6/1/99
11:20:49

Entity ID: 218
Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
WRP Tree Planting Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
 2. Name of Project: WRP Tree Planting Program
EIA Project ID: 1011
 3. Location:
U.S. Only Central and Southern Indiana
Dispersed:
 4. Date Project Became Operational:
Jan 1997
 5. Reasons for Project:
Voluntary reduction
 6. Participation in Voluntary Programs:
Climate Challenge
- Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

11:20:50

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp.

WRP Tree Planting Program

Part II. Specific Project Information

1. Project Type:

Afforestation

2. Forest Composition:

Forest Composition of the Activity: Tree planting in wetland areas to establish bottomland hardwood forests in areas that are not marginal cropland and pasture lands.

3. Historic Land Use:

Pasture:

4. Reference Case Land Use:

Pasture:

5. Project Characteristics:

Size Measure	Unit of Measure	Quantity
Area Affected	acres	115.5
Trees Planted	number	19100
Timber Productivity	cubic feet volume growth per acre	52000
Harvest Age	years	
Mean Age of Stands	years	

6. Project Description:

Cinergy is providing funding for landowners to purchase and plant trees on lands which are eligible for the Wetland Reserve Program (WRP) conducted by the US Department of Agriculture. Lands targeted by Cinergy include bottomland that were cleared decades ago for agricultural cultivation. Project sites are chosen based on the fact that it is unlikely that the sites will be reforested otherwise.

The lands targeted are currently unforested or sparsely forested and are anticipated to stay that way. While there is considerable interest in planting acres that are currently unforested, funding assistance through the WRP program is simply insufficient to allow all interested land owners to act on that interest. Other incentives such as cost-sharing programs, low-interest loans, and tax credits are becoming less and less available.

Voluntary Reporting of Greenhouse Gases

11:20:52

Schedule II. Project-Level Emissions and Reductions Section 8. Carbon Sequestration

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp. WRP Tree Planting Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

This report contains information on:
Entire Project

5. Estimation Method:

Initially, sequestration rates are being calculated using Table 5.E.23 for years 0 to 5. The carbon sequestration for the five year period is averaged and the single year number is being used for reporting.
Future year's sequestration will be based on measurement and verification protocols being developed with input from a third party conservancy group. In the near future, base line information, field measurements, and verification will take place. Future reports will reflect those field measurements.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

6/11:20:57

Entity ID: 218
Status: Preliminary

Reporting Year: 1998

Cinergy Corp.
UtiliTree - W. Oregon Carbon Sequestration Proj.

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: UtiliTree - W. Oregon Carbon Sequestration Proj.
EIA Project ID: 1009
3. Location:
U.S. Only
Dispersed: Lane, Yamhill and Clackamas counties, Oregon
4. Date Project Became Operational:
Apr 1997
5. Reasons for Project:
Voluntary reduction
6. Participation In Voluntary Programs:
Climate Challenge

Other programs:
Program:
Sponsor:

Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Reporting Year: 1998

Entity ID: 218
Status: Preliminary

Cinergy Corp.
UtiliTree - W. Oregon Carbon Sequestration Proj.

Part II. Specific Project Information

- 1. Project Type:**
Afforestation
- 2. Forest Composition:**
Forest Composition of the Activity: douglas fir, grand fir, western red cedar, and ponderosa pine
- 3. Historic Land Use:**
Other: hayland, pasture, and idle.
- 4. Reference Case Land Use:**
Other: hayland, pasture, and idle.

5. Project Characteristics:

Size Measure	UNIT OF Measure	Quantity
Mean Age of Stands	years	1
Timber Productivity	cubic feet volume growth per acre	
Trees Planted	number	
Area Affected	acres	
Harvest Age	years	65

Voluntary Reporting of Greenhouse Gases

8/11/98
11:20:58

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp.

UtiliTree - W. Oregon Carbon Sequestration Proj.

6. Project Description:

The Western Oregon Carbon Sequestration Project will sequester carbon by planting trees on unforested non-industrial timberland in western Oregon that otherwise would not be replanted. Native species, such as douglas fir, western red cedar, and ponderosa pine will be planted on participating properties at an initial density of 500 seedlings per acre with the objective of establishing 400 dominant and healthy trees per acre that are will spaced after four growing seasons. Specific actions will be taken as necessary to ensure success of the reforestation effort including animal control, brush removal, and replanting dead or damaged seedlings.

The project includes a long term forest management plan for each site to assure that carbon sequestration goals conform to forest management initiatives and landowner concerns. The plan is a contractual agreement between landowners and the project's developer, Trexler and Associates. The contract which obligates landowners for a minimum of 65 years, assures that the land will remain forested within the provisions required for a successful carbon sequestration project.

79 acres were planted in 1997 involving 33,000 seedlings. The species planted in 1997 were douglas fir, western red cedar, ponderosa pine, and grand fir.

Voluntary Reporting of Greenhouse Gases

6/7/99
 11:20:59

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.

UtiliTree - W. Oregon Carbon Sequestration Proj.

Part III. Sequestration

Gas	Type	Unit of Measure	1995				1997				1998				Emission Reductions in Future Years	
			Physical Quantity	Annual Average	Number of Years											
Carbon	Total Storage	short tons														
Carbon	Annual Increase	short tons														
Carbon Dioxide	Total Storage	short tons														
Carbon Dioxide	Annual Increase	short tons														

Sequestration

Carbon
 Carbon
 Carbon Dioxide
 Carbon Dioxide

short tons
 short tons
 short tons
 short tons

4
 4
 14
 14

23
 19
 83
 69

High
 High
 High
 High

4.0
 4.0
 14.0
 14.0

65
 65
 65
 65

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

6
11:21:00

Entity ID: 218
Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
UtiliTree - W. Oregon Carbon Sequestration Proj.

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:
Other UtiliTree Carbon Company members

This report contains information on:

A portion of the project 0.0399

5. Estimation Method:

Contractual monitoring will take place and OWI will be responsible for overseeing all landowner activities through year 5. Annual monitoring will follow planting to ensure sites remain fully stocked and in a free-to-grow state. OWI will inspect all property included in the program by the end of the fifth growing season after planting and certify that the specified number of seedlings are established per acre and the seedlings are well-distributed. Monitoring and verification will occur over 5 years thereafter.

Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Reporting Year: 1998

Entity ID: 218

Status: Preliminary.

Cinergy Corp.
UtiliTree - Mississippi River Valley Bottomland Hardwood

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
 2. Name of Project: UtiliTree - Mississippi River Valley Bottomland
Hardwood
EIA Project ID: 1008
 3. Location:
U.S. Only
Dispersed: Catahoula Parish Louisiana
 4. Date Project Became Operational:
Apr 1997
 5. Reasons for Project:
Voluntary reduction
 6. Participation In Voluntary Programs:
Climate Challenge
- Other programs:
Program:
Sponsor:

Entity ID: 218
 Status: Preliminary

Reporting Year: 1998

Cinergy Corp.
UtiliTree - Mississippi River Valley Bottomland Hardwood

Part II. Specific Project Information

1. Project Type:

Afforestation

2. Forest Composition:

Forest Composition of the Activity: Bottomland Hardwoods; nuttall oak, overcup oak, willow oak, bitter pecan, sweet pecan, sweet gum, sugarberry, cottonwood, and green ash.

3. Historic Land Use:

Cropland, crop type: Marginal agricultural cropland, previously in grain crops

4. Reference Case Land Use:

Cropland, crop type: Marginal agricultural cropland previously in grain crops

5. Project Characteristics:

Size Measure	Unit of Measure	Quantity
Mean Age of Stands	years	1
Timber Productivity	cubic feet volume growth per acre	
Harvest Age	years	70
Trees Planted	number	
Area Affected	acres	

Voluntary Reporting of Greenhouse Gases

6
11:21:06

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

UtiliTree - Mississippi River Valley Bottomland Hardwood

6. Project Description:

The project will investigate the feasibility of using bottomland hardwood forest restoration on marginal farmland in the Mississippi Valley as a means of sequestering atmospheric carbon dioxide, a principal greenhouse gas. The project will also seek to improve the methods of reestablishing such forests. The 60 acre study site, located in Catahoula Parish, Louisiana, is owned by the Louisiana Department of Wildlife and Fisheries and is part of a 7,000 acre tract that is available for afforestation. The restored forest will be part of the Beouf Wildlife Management Area. The project life of the plantations established will be 70 years. Once these plantations are established, the stands will be managed on a sustained yield basis.

Both tree planting and direct seeding of bottomland hardwood species will be involved. Nursery raised 1-0 seedlings will be used and planted on a 10' x 10' spacing for an initial density of 545 seedlings per acre. Direct seeding will be done on a three foot spacing with the rows eight feet apart, for an initial density of 1815 seeds per acre. The direct seeding species to be used include bitter pecan, sweet pecan, nuttall oak, overcup oak, and willow oak. Nursery seeding species to be used include sweet gum, sugarberry, cottonwood, and green ash.

Also, the project will evaluate site preparation techniques aimed at enhancing early survival and growth of the planted trees. Older planted hardwood forests (up to 30 years old) will be sampled in the region to make projections on longer-term carbon sequestration rates. The project will advance the current state of knowledge regarding plantation establishment and maintenance in the region, as well as on the quantification of carbon sequestration by bottomland hardwoods. There is great potential for the project to be expanded or replicated and thereby provide the region with healthy bottomland forests and improve the health of the local timber market.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 8. Carbon Sequestration

6...J
 11:21:08

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
UtiliTree - Mississippi River Valley Bottomland Hardwood

Part III. Sequestration

Gas	Type	Unit of Measure	1995			1996			1997			1998			Accuracy	Emissions Reductions in Future Years	Annual Number of Years	
			Physical Quantity				Physical Quantity											
Carbon	Total Storage	short tons															0.0	0
	Annual Increase	short tons															2.0	70
Carbon Dioxide	Total Storage	short tons															0.0	0
	Annual Increase	short tons															6.0	70

Voluntary Reporting of Greenhouse Gases

11:21:08

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

UtiliTree - Mississippi River Valley Bottomland Hardwood

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:

Other UtiliTree Carbon Company Members

This report contains information on:

A portion of the project 0.0399

5. Estimation Method:

Carbon sequestration will be monitored through annual measurements of the planted trees and soil carbon accrual on permanent sample plots in the study area by Louisiana Tech University personnel.

Sampling Design

Each treatment plot identified above will be divided into four quadrants and a .10 acre measurement plot will be established in the center of each quadrant. All established trees in the measurement plots will be tallied and measured for total height and root collar diameter for the first five growing seasons.

Above Ground Biomass

Destructive sampling will involve one tree of each species for the determination of total above ground biomass.

Below Ground Biomass

Measurement of below ground biomass accrual in woody roots will be made through the excavation of one tree per species per treatment plot.

Soil Carbon

Soil samples will be collected from various depths within each sample plot quadrant. The soil samples will be analyzed for total organic content using the Walkley-Black method.

Measurements of Older Plantations

Additional data measurements will be taken from older bottomland hardwood plantations (in stands ranging from 5 to 30 years in age) on similar soils to determine the carbon sequestration beyond that of the trees actually planted in the project area.

Cinergy owns a percentage of UtiliTree's investment of the project. The carbon sequestration reported reflects that percentage.

Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.
Rio Bravo Carbon Sequestration Pilot Project

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
 2. Name of Project: Rio Bravo Carbon Sequestration Pilot Project
EIA Project ID: 1007
 3. Location:
Foreign Operations Only:
Belize
 4. Date Project Became Operational:
Jan 1995
 5. Reasons for Project:
Voluntary reduction
 6. Participation in Voluntary Programs:
United States Initiative on Joint Implementation
Climate Challenge
- Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 8. Carbon Sequestration

6/1/99
11:21:14

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.
Rio Bravo Carbon Sequestration Pilot Project

Part II. Specific Project Information

1. Project Type:
Forest preservation
2. Forest Composition:
Forest Composition of the Activity: See project description.
3. Historic Land Use:
Forest, forest type: See project description.
4. Reference Case Land Use:
Forest, forest type: See project description.

5. Project Characteristics:

Size Measure	Unit of Measure	Quantity
Mean Age of Stands	years	1995 1996 1997 1998 1999
Timber Productivity	cubic feet volume growth per acre	
Trees Planted	number	
Area Affected	acres	13843
Harvest Age	years	

Voluntary Reporting of Greenhouse Gases

6/11/95
11:21:14

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

Rio Bravo Carbon Sequestration Pilot Project

6. Project Description:

The Rio Bravo Carbon Sequestration Pilot Project is being undertaken through a partnership of Wisconsin Electric, Detroit Edison, PacifiCorp, and Utililife Carbon Company (the "Financial Participants"). The Nature Conservancy, and a Belizean NGO, Program for Belize (PFB). In addition to their financial role, the Financial Participants are closely involved in project design and support in project implementation. The project was accepted by USIJI on January 31, 1995.

The project area is located in northwestern Belize, Central America, and centered on the eastern land parcels of the Rio Bravo Conservation and Management Area. The project consists of two components. Component A includes the purchase of a 13,843 acre parcel of endangered forest threatened with deforestation to facilitate agricultural conversion. The purchase of this parcel will link two forested Rio Bravo Properties owned by PFB in the northwestern corner of Belize. Component B establishes a sustainable forestry management program on the entire Rio Bravo Conservation and Management Area which includes Component A, as well as the other land parcels already held by PFB. Component B will implement improved forest management techniques and timber processing and marketing approaches, and is designed to optimize carbon sequestration in a 120,000 acre area.

This report covers only Component A of the project, completed in December, 1995. Subsequent reports will include sequestration for both Components A and B. It also is limited to CO2 reporting only. Although it is recognized that the project may influence emissions of other greenhouse gases, no reliable data are available at this time.

The carbon and/or CO2 sequestered by the project is divided equally among the Financial Participants.

Voluntary Reporting of Greenhouse Gases

11:21:15

Schedule II. Project-Level Emissions and Reductions
 Section 8. Carbon Sequestration

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
 Rio Bravo Carbon Sequestration Pilot Project

Part III. Sequestration

Gas	Type	Unit of Measure	1995				1996				1997				1998				Emissions Reductions in Future Years	
			Physical Quantity	Annual Average	Number of Years															
Carbon	Total Storage	short tons	48496	98993	145490	193987	High													
Carbon	Annual Increase	short tons	48496	48497	48497	48497	High													
Carbon Dioxide	Total Storage	short tons	177723	355841	533463	1711446	High													
Carbon Dioxide	Annual Increase	short tons	177819	177822	177822	177983	High													

Voluntary Reporting of Greenhouse Gases

11:21:16

Schedule II. Project-Level Emissions and Reductions Section 8. Carbon Sequestration

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp. Rio Bravo Carbon Sequestration Pilot Project

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:
None

2. Reports to Other Agencies:

Government Body	Reference Number
USUJI	

This report contains information on:

A portion of the project 0.2

5. Estimation Method:

The project reference case is based on the scenario that, but for the project, the use of the land purchased under Component A would have changed from traditional logging to intensive mechanized agriculture. It assumes that, following purchase by mechanized farming interests, open water and herbaceous swamps would remain unaltered, and all other lands would be converted to agriculture over a 5 year period. The historic trend of clearance from forest to intensive agriculture in the project area is documented.

The carbon sequestration estimates were based upon actual measurements from 58 permanent plots in Component A of the Rio Bravo project in 1996. Component A includes nine areas which include four different forest community types and totals 13,843 acres.

The calculation model used to determine carbon offsets was:

$$NETC = Cp - Cag - Cal$$

Where:

NETC = net carbon sequestration

Cp = carbon stocks in the preserved area

Cag = carbon stocks in areas converted to agriculture

Cal = the amount of carbon returned to the atmosphere due to improved logging practices.

The carbon offset for Year 1 is $NETC = (Cp - Cag) / 5$ because there has been no logging since the project began. Only above ground biomass carbon and soil carbon were included. Future analysis of the litter and herbaceous vegetation, and below ground biomass should yield additional sequestered carbon.

Communities included in Component A include swamp forest, upland burned areas, uplands, and upland mixed with transition to bajo.

Voluntary Reporting of Greenhouse Gases

6/1/99
11:21:21

Schedule II. Project-Level Emissions and Reductions Section 8. Carbon Sequestration

Entity ID: 218

Status: Preliminary

Reporting Year: 1988

Cinergy Corp. Facility Tree Planting Program

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Facility Tree Planting Program
EIA Project ID: 801
3. Location:
U.S. Only
Dispersed: Southwest Ohio & Central and Southern Indiana
4. Date Project Became Operational:
Jan 1991
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases

11:21:22

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

Facility Tree Planting Program

Part II. Specific Project Information

1. Project Type:

- Aforestation
- Urban Forestry (sequestration only)

2. Forest Composition:

Forest Composition of the Activity: Tree planting at company facilities and urban forestry programs for urban parks and urban forests. Trees are a mix of hardwoods and pines.

3. Historic Land Use:

- Other: Urban or utility property

4. Reference Case Land Use:

- Other: Urban parks and utility property

5. Project Characteristics:

Size Measure	Unit of Measure	Quantity	1995	1996	1997	1998
Timber Productivity	cubic feet volume growth per acre					
Trees Planted	number		22140	47839	13390	13290
Area Affected	acres		40	87	24	24
Mean Age of Stands	years					
Harvest Age	years					

Voluntary Reporting of Greenhouse Gases

11:21:22

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp.

Facility Tree Planting Program

6. Project Description:

Cinergy Forestry Projects

Cinergy annually plants trees at certain facilities, such as power plants, as conservation programs. Also, Cinergy plants trees at its facilities for landscaping and screening purposes. In addition Cinergy has sponsored various civic projects such as tree give-aways at schools and other civic groups, such as the boy scouts or Girl scouts. These programs were conducted in 1993, 1994, 1995, and 1996. Cinergy sponsors urban forestry programs with local parks departments and/or local forestry departments. The urban forestry programs for the years 1991 through 1995 have been designed as tree planting programs in parks and designated urban forests such as Mt. Airy Forest in Hamilton County, Ohio; and not as energy conservation programs.

The following table represents Cinergy's tree planting programs as described above:

Trees Planted Year	Hardwood	Softwood
1991	494	185
1992	7,671	646
1993	82,754	16,674
1994	40,780	21,410
1995	37,218	24,506
1996	40,139	30,000
1997	13,390	0
1998	13,290	0

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Facility Tree Planting Program

Part III. Sequestration

Gas	Type	Unit of Measure	1995				1996				1997				1998				Emission Reductions in Future Years	
			Physical Quantity	Annual Average	Number of Years															
Carbon	Total Storage	short tons	254.9	432.1	655.7	928.1	Moderate													
	Annual Increase	short tons	117	177.2	223.6	272.4	Moderate													
	Total Storage	short tons	934.7	1584.4	2404.1	3403	Moderate													
	Annual Increase	short tons	428	648.7	819.8	998.9	Moderate													

Voluntary Reporting of Greenhouse Gases

11:21:24

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

Facility Tree Planting Program

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:

Participating civic groups could potentially report on this project.

This report contains information on:

Entire Project

5. Estimation Method:

Where trees were given away to schools or groups a 50% survival rate was assumed. This assumption is based on discussions with local foresters. To convert the number of trees planted to acreage, it was assumed that there are 550 trees per acre.

The land uses where trees were planted during the specified years were grasslands. The land for the most part was planted in grass and maintained by Cinergy subsidiary companies. Carbon sequestration was calculated using EIA's Excel spreadsheet, which is available through their internet site.

Voluntary Reporting of Greenhouse Gases

6/1/98
11:21:29

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Status: Preliminary.

Reporting Year: 1998

Cinergy Corp.

UtiliTree - Reduced Impact Logging, Malaysia

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
 2. Name of Project: UtiliTree - Reduced Impact Logging, Malaysia
EIA Project ID: 1010
 3. Location:
Foreign Operations Only:
Malaysia
 4. Date Project Became Operational:
Sep 1997
 5. Reasons for Project:
Voluntary reduction
 6. Participation in Voluntary Programs:
Climate Challenge
- Other programs:
Program:
Sponsor:

Voluntary Reporting of Greenhouse Gases

11:21:29

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp.

UtiliTree - Reduced Impact Logging, Malaysia

Part II. Specific Project Information

1. Project Type:
Modified forest management
2. Forest Composition:
Forest Composition of the Activity: Natural dipterocarp tropical forests
3. Historic Land Use:
Forest, forest type: Natural dipterocarp tropical forest
4. Reference Case Land Use:
Forest, forest type: Natural dipterocarp tropical forest

Voluntary Reporting of Greenhouse Gases

11:21:29

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Reporting Year: 1998

Status: Preliminary

Cinergy Corp.

UtiliTree - Reduced Impact Logging, Malaysia

6. Project Description:

The reduced impact logging (RIL) project involves implementation of techniques to reduce carbon dioxide (CO2) emissions associated with uncontrolled logging of natural tropical forests in Malaysia.

The RIL project will be carried out on 2,500 acres by Rakyat Berjaya Sdn. Bhd (RBJ) of Malaysia, on land within its 2.4 million acre timber concession. The forest Research Institute of Malaysia, Sabah Forestry Department, Center of International Forestry Research in Bogor, Indonesia, and Rainforest Alliance, a New York based non-governmental environmental organization, joined the project as coordinators. Foresters from the Queensland Forest Service, the Swedish University of Agriculture and Science, and the University of Florida have been consultants to the project and will continue as advisors.

The RIL project aims to reduce greenhouse gas emissions from natural forests by preventing degradation and loss of natural tropical forests, and sustain the level of forest products. This approach presents an environmental win-win situation where mitigation of greenhouse gas emissions is linked to tropical forest conservation.

Historically, in the process of harvesting as few as 10 to 15 trees per hectare, as much as 300 to 350 metric tons of CO2 per hectare were emitted due to uncontrolled and destructive logging practices. Trees literally tied together by vines were felled in random directions and extracted by bulldozers, breaking and uprooting as many as 50% of the remaining trees and crushing up to 40% of the land area. The potential for regrowth (sequestration) within the residual forest stand was severely impaired by these destructive practices.

It has been demonstrated that by utilizing reduced impact logging guidelines logging damage could be reduced by as much as 50% through precutting vines, directional felling, an planned extraction of timber on properly constructed and utilized skid trails.

Greenhouse gas benefits are derived from reduced emissions due to less forest destruction and enhanced sequestration by the residual forest following harvest for forest products.

Voluntary Reporting of Greenhouse Gases

11:21:33

Schedule II. Project-Level Emissions and Reductions
 Section 8. Carbon Sequestration

Reporting Year: 1998

Entity ID: 218
 Preliminary

Cinergy Corp.
 UtiliTree - Reduced Impact Logging, Malaysia

Part III. Sequestration

Gas	Type	Unit of Measure	1995-1998 Physical Quantity				Accuracy	Emission Reductions in Future Years	
			1995	1996	1997	1998		Annual Average	Number of Years
HCFC-142b (chlorodifluoroethane)	Total Storage	short tons					High		
	Annual Increase	short tons					High	409.0	40
	Total Storage	short tons			1501	1501	High		
	Annual Increase	short tons			1501	997	High	1,501.0	40

Sequestration

Voluntary Reporting of Greenhouse Gases

06/29
11:21:34

Schedule II. Project-Level Emissions and Reductions

Section 8. Carbon Sequestration

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.

UtiliTree - Reduced Impact Logging, Malaysia

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:

Other UtiliTree Carbon Company members

This report contains information on:

A portion of the project . 0.0399

5. Estimation Method:

To verify success, the project will use third party verification and field based methods to quantify carbon dioxide benefits. Quantification of the greenhouse gas benefits will be conducted by and under the direction of Dr. Michelle A. Pinard, of the University of Aberdeen in Scotland. The benefits are quantified by field based carbon flux measurements comparing reduce impact logging practices and conventional logging practices, one, two, and five years after logging. Benefits accrued beyond field measurements are based on setensive literature and modeling-based emissions for similar sequestration projects.

the carbon pools measured will be above ground biomass, below ground biomass, woil carbon, other necromass. Permanent sampling plots will be established and measured in the project area prior to logging and then measured after logging to quantify the carbon benefits.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 10. Other Emission Reduction Projects

6/11/94
11:21:38

Reporting Year: 1998

Entity ID: 218

Status: Preliminary

Cinergy Corp.

Recycled Paper and Aluminum

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Recycled Paper and Aluminum
EIA Project ID: 1002
3. Location:
U.S. Only
Dispersed: Southwestern Ohio & Central and Southern Indiana
4. Date Project Became Operational:
Jan 1994
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions

6/1/99
 11:21:39

Section 10. Other Emission Reduction Projects

Reporting Year: 1998

Entity ID: 218

Status: Preliminary

Cinergy Corp.
Recycled Paper and Aluminum

Part II. Specific Project Information

1. Project Type:

Materials recycling/reuse

2. Project Scale:

Full-Scale/Commercial

3. Project Size:

Size Measure	1995	1996	1997	1998
Aluminum Cans	45	51	24	24
Office & Computer Paper	110334	121367	310	310

4. Project Description:

Cinergy collects and recycles computer paper, mixed office paper, and aluminum cans from its facilities located throughout southwest Ohio, central and southern Indiana, and Northern Kentucky. Materials are deposited in central locations throughout the facilities by Cinergy personnel. Cinergy's Facility Maintenance Department collects the containers and dumps them in a roll-off box which is collected by the recycler.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 10. Other Emission Reduction Projects

11:21:40

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
 Recycled Paper and Aluminum

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995 Physical Quantity	1996 Physical Quantity	1997 Physical Quantity	1998 Physical Quantity	Accuracy	Emission Reductions in Future Years
Carbon Dioxide	Indirect	short tons	132986	146304	684	684	High	Annual Average Number of Years

Reductions

Voluntary Reporting of Greenhouse Gases

6/11/99
11:21:41

Schedule II. Project-Level Emissions and Reductions

Section 10. Other Emission Reduction Projects

Entity ID: 218

Status: Preliminary

Reporting Year: 1998

Cinergy Corp.

Recycled Paper and Aluminum

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:
Cincinnati Gas & Electric Co., a Cinergy company

This report contains information on:

Entire Project

5. Estimation Method:

The amount of materials recycled was metered by Cinergy personnel.

The amount of CO2 reductions was estimated by using the following:

Each ton of computer and mixed office paper recycled resulted in 1.2 tons of CO2 emissions reductions.
Each ton of aluminum recycled resulted in 13 tons of CO2 emissions reductions.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
Section 10. Other Emission Reduction Projects

6/1/99
11:21:45

Reporting Year: 1998

Entity ID: 218

Status: Preliminary

Cinergy Corp.

Beneficial Use of Coal Fly Ash

Part I. General Project Information

1. Name of Entity: Cinergy Corp.
2. Name of Project: Beneficial Use of Coal Fly Ash
EIA Project ID: 1001
3. Location:
U.S. Only
Dispersed: Southwest Ohio & Central and Southern Indiana
4. Date Project Became Operational:
Jan 1991
5. Reasons for Project:
Voluntary reduction
6. Participation in Voluntary Programs:
Climate Challenge

Voluntary Reporting of Greenhouse Gases

11:21:46

Schedule II. Project-Level Emissions and Reductions
 Section 10. Other Emission Reduction Projects

Reporting Year: 1998

Cinergy Corp.
Beneficial Use of Coal Fly Ash

Part II. Specific Project Information

1. Project Type:
Coal ash reuse
2. Project Scale:
Full-Scale/Commercial
3. Project Size:

Size Measure	Unit of Measure	Quantity	1995	1996	1997	1998
Amount of fly ash	short tons		113971	149784	98257	98430

4. Project Description:

Beneficial Use of Coal Fly Ash

Cinergy has an active marketing program to market the fly ash from the combustion of coal in their electric generating plants. The fly ash is sold or given to ready-mix concrete plants to substitute for portland cement in mixes for roads and buildings. The substitution of fly ash reduces the amount of CO2 emissions from cement kilns because less cement is manufactured by the kilns.

All fly ash used in the production of portland cement is sold through a broker.

Voluntary Reporting of Greenhouse Gases
Schedule II. Project-Level Emissions and Reductions
 Section 10. Other Emission Reduction Projects

5/1/99
 11:21:47

Entity ID: 218
 Preliminary

Reporting Year: 1998

Cinergy Corp.
Beneficial Use of Coal Fly Ash

Part III. Greenhouse Gas Emissions and Reductions

Gas	Type	Unit of Measure	1995				1996				1997				1998				Emission Reductions In Future Years
			Physical Quantity	Annual Average of Years	Number of Years														
Carbon Dioxide	Indirect	short tons		91177	119811	78606	77144	High	140,000.0	20									

Voluntary Reporting of Greenhouse Gases

99
11:21:47

Schedule II. Project-Level Emissions and Reductions Section 10. Other Emission Reduction Projects

Entity ID: 218

Reporting Year: 1998

Status: Preliminary.

Cinergy Corp.

Beneficial Use of Coal Fly Ash

Part IV. Project Evaluation

1. Reference Case:

Modified - Other (See Estimation Method)

3. Multiple Reporting:

Other entities that could report on the effects of this project:

Per contractual agreement, Cinergy will be the sole reporter of this project.

This report contains information on:

Entire Project

5. Estimation Method:

In the US, the production of one ton of cement results in the emission of approximately 0.95 tons of CO₂. About half of this is from the calcination process, and about half is from the combustion of fossil fuels consumed in the cement's process. Since 1.2 tons of fly ash can be used in place of 1 ton of cement the reduction of CO₂ from the cement kiln is approximately 0.8 tons (1 ton of cement divided by 1.2 tons of cement; 0.95 tons of cement; 0.95 tons of CO₂ multiplied by .833 = .792 or about .8 tons of CO₂).

Voluntary Reporting of Greenhouse Gases
Schedule III. Entity-Level Emissions and Reductions

Cinergy Corp.

Reporting Year: 1998

Entity ID: 218
 Preliminary

Domestic

Part Ia. Direct Emissions

Source of Emissions Greenhouse Gas	Unit of Measure	1987	1988	1989	1990	1995	1997	1998
1. Stationary Combustion Carbon Dioxide	short tons	40897278	41833344	42737712	48154084	58042738	55573384	57342697
2. Transportation Carbon Dioxide	short tons	44237	38875	40703	39702	37940	38000	38000
3. Other Direct Sources Methane	short tons	27069	39145	43748	42028	43198	41324	42881
								64829023

Part Ib. Reductions in Direct Emissions

Source of Emissions Greenhouse Gas	Reference Case Type	Unit of Measure	1995	1996	1997	1998
1. Stationary Combustion Carbon Dioxide	Modified	short tons	1044041	1889469	1579982	1864169
2. Transportation Carbon Dioxide	Modified	short tons	120	120	120	120

Part Ia. Indirect Emissions

Source of Emissions Greenhouse Gas	Unit of Measure	1987	1988	1989	1990	1995	1997	1998
1. Power Transactions Indirect CO2 from Purchased Power	short tons					14879	23281	25420
								22024

Part Ib. Reductions in Indirect Emissions

Source of Emissions Greenhouse Gas	Reference Case Type	Unit of Measure	1995	1996	1997	1998
2. Other Indirect Sources Methane	Modified	short tons	22874	30387	31828	32505

Voluntary Reporting of Greenhouse Gases
Schedule III. Entity-Level Emissions and Reductions

Entity ID: 218
 Preliminary

Cinergy Corp.

Reporting Year: 1998

Domestic

Part IIb. Reductions in Indirect Emissions

Source of Emissions (Greenhouse Gas)	Reference Case Type	Unit of Measure
2. Other Indirect Sources	Modified	short tons

1995	1996	1997	1998
224163	268115	79260	77828

Part III. Sinks and Sequestration

Source of Emissions (Greenhouse Gas)	Reference Case Type	Unit of Measure
Carbon Dioxide	Modified	short tons

1995	1996	1997	1998
429	650	841	1074

Part IVa. Total Emissions

Source of Emissions (Greenhouse Gas)	Unit of Measure
Methane	short tons
Carbon Dioxide	short tons

Baseline Emissions		1987	1988	1989	1990
Methane	short tons	27069	39145	43748	42028
Carbon Dioxide	short tons	40941513	41872219	42778415	48193786

Part IVb. Total Reductions

Source of Emissions (Greenhouse Gas)	Reference Case Type	Unit of Measure
Methane	Modified	short tons
Carbon Dioxide	Modified	short tons

1995	1996	1997	1998
22673	30387	31928	32505
1453680	2341283	1846664	2129278

Voluntary Reporting of Greenhouse Gases
 Schedule III. Entity-Level Emissions and Reductions

Entity ID: 218
 Preliminary

Cinergy Corp.

Reporting Year: 1998

Foreign

Part III. Sinks and Sequestration

Source of Emissions Greenhouse Gas	Reference Case Type	Unit of Measure

1995	1996	1997	1998

Carbon Dioxide Modified short tons

184927 184929 188431 186087

Part V. Additional Information

1. Estimation Method

Projects are described along with estimation methods in Schedule II.

2. Scope of the Report

This report includes the CO2 emissions from the coal, natural gas, and oil fired electric generation, natural gas distribution, and fleet operations of The Cincinnati Gas & Electric Company (CG&E), PSI Energy (PSI), Union Light Heat & Power (ULH&P), and Lawrenceburg Gas all of which are Cinergy companies.

The CG&E electric generating units included in this report include:

- East Bend Unit 2 (69%)*;
- W. H. Zimmer (46.5%)*;
- Miami Ft. Units 5, 6, 7 (64%)*, 8 (64%)*, GT's 1 through 6;
- W. C. Beckjord Units 1, 2, 3, 4, 5, 6 (37.5%)*, GT's 1 through 4;
- Woodsdale Units 1 through 6; and
- Dick's Creek GT's 1, 3, 4, and 5;
- Stuart Units 1 (39%)*, 2 (39%)*, 3 (39%)*, and 4 (39%)*;
- Killen Unit 2 (33%)*;
- Conesville Unit 4 (40%)*.

The PSI electric generating units included in this report include:

- Cayuga Units 1 and 2;
- Edwardsport Units 6, 7, and 8;
- Gallagher Units 1, 2, 3, and 4;
- Gibson Units 1, 2, 3, 4, and 5 (50%)*;
- Noblesville Units 1, 2, and 3;
- Wabash River Units 1 through 6.

* Denotes the percentage of Cinergy ownership in that particular generating unit, and the amount of CO2 emissions from that generating unit reported by Cinergy.

Voluntary Reporting of Greenhouse Gases
Schedule III. Entity-Level Emissions and Reductions

Entity ID: 218
Preliminary

Cinergy Corp.

Reporting Year: 1998

Part V. Additional Information
3. Supplementary Information

Cinergy's electric generating capacity is designed to meet its customers demands. Customer demands are affected by both the economic health of the country and the region, and by extremes in weather conditions - heat in the summer and cold in the winter. These same indicators affect the amount of CO2 emitted by Cinergy's generating facilities from year to year. If the economy enters a downturn, customers' need for electricity is reduced. If the weather patterns produce extended periods of heat or cold, customers' need for electricity is increased.

Cinergy serves parts of three states - Ohio, Kentucky, and Indiana. This region has a healthy economy and the number of residential, commercial, and industrial customers is expected to grow. This growth is reflected in Cinergy's projected net energy production needs (megawatt hours), which are projected to increase at a rate of 1.8% per year between 1995 to 2015. This growth rate is reflected in Cinergy's projected CO2 emissions for 1995 to 2000. It is expected that CO2 emissions will increase by a total of 11 million from the 1990 level of 47.1 million tons to approximately 58 million tons by 2000. These projections of CO2 emission increases assume that no reduction programs are implemented during the period of 1994 to 2000.

It is Cinergy's goal to reduce or offset its CO2 emissions to maintain them at the 1990 levels by 2000 through the implementation of low-cost and cost effective programs as described in Cinergy's Climate Challenge Participation Accord.

Programs reported in Schedule II of this submission.

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-018

REQUEST:

18. On page 8-31 of the IRP, it is stated that new technologies were the only long-term methods of reducing carbon dioxide emissions. With respect to the resource options considered by Cinergy on page 8-7, please supply the annual carbon dioxide reductions, compared to Cinergy's present average carbon dioxide emissions per kilowatt-hour, for the following options:

- a) The DSM Bundle
- b) 25 MW Interruptible DSM
- c) 56 MW Hydro Purchase
- d) 46 MW Hydro Purchase

RESPONSE:

ULH&P did not perform the runs or calculations required to produce the requested information.

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-019

REQUEST:

19. On page 8-31 of the IRP, it is stated that electrotechnologies could replace fossil fuels to reduce carbon dioxide emissions. Considering that coal-fired power plants that generate the vast majority of Cinergy's electric energy are only about 33% efficient, please provide any fossil fuel technologies that could be replaced by electrotechnologies to reduce carbon dioxide emissions. For each, please supply all calculations to show that carbon dioxide emissions would be reduced.

RESPONSE:

Electrotechnologies allow the substitution of an electric process and/or electrical equipment for applications using other fuels or less efficient electric equipment. Where the energy chain involved in electricity production results in lower total emissions than a current alternative, electrotechnologies will provide a net benefit to the environment.

Electrotechnologies may offer, in addition, reduced investment and operating costs, improved product quality, and improved convenience of use. Current applications of electrotechnologies are primarily in the commercial and industrial sector; however residential applications are increasing.

Some examples of electrotechnologies include:

- Electric vehicles powered either by batteries or fuel cells, that would reduce the amount of gasoline consumed.
- Cinergy Solutions, a subsidiary of Cinergy Corp., works with various businesses to provide consulting support, education, and project design concerning electric technologies and electric efficiency and conservation.
- Electric lawn mowers are more efficient and account for fewer emissions even when emissions from electric power plants are considered, than gasoline powered lawn mowers.
- Electric arc furnaces designed for the steel industry are more efficient and account for fewer emissions than coke furnaces.
- Ultraviolet (UV), infrared, and radio frequency curing and drying are more efficient and account for fewer emissions than natural gas fired ovens.

WITNESS RESPONSIBLE:

Diane Jenner

**KY Attorney General
Data Request Set No. 1
Case No. 99-449
Date Received: Jan. 10, 2000
Response Due Date: Feb. 8, 2000**

AttGen-01-020

REQUEST:

20. In the General Appendix, in the Long Term Forecast page 12, the figures in 1999, 2005, 2011 and 2017 are about half of the previous years' figures, then the figures double in the next years. Please explain these erratic drops and explain how these figures affect the averages calculated on this page.

RESPONSE:

The form in the General Appendix is in error. Please see the attached corrected form.

WITNESS RESPONSIBLE:

James A. Riddle

A

**CINERGY
ELECTRIC CUSTOMERS BY MAJOR CLASSIFICATIONS
ANNUAL AVERAGES**

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	STREET LIGHTING	OPA	WHOLE-SALE	TOTAL CUSTOMERS	ANNUAL INCREASE	ELECTRIC - KWH RESIDENTIAL USE PER CUSTOMER
1993	1,160,513	142,767	6,263	1,808	3,869	39	1,315,259	23,285	11,784
1994	1,174,705	144,766	6,345	1,818	3,914	41	1,331,589	16,331	11,975
1995	1,195,323	147,898	6,424	1,927	4,029	45	1,355,638	24,048	11,947
1996	1,216,005	149,050	6,471	2,053	4,115	63	1,377,756	22,119	12,080
1997	1,236,974	151,094	6,472	2,139	4,141	75	1,400,894	23,560	11,576
1998	1,256,579	154,545	6,531	2,179	4,271	75	1,424,179	23,285	11,855
1999	1,277,086	157,528	6,614	2,203	4,361	75	1,447,867	23,688	11,963
2000	1,297,512	160,542	6,695	2,225	4,446	75	1,471,495	23,628	11,963
2001	1,316,376	163,328	6,771	2,249	4,529	75	1,493,327	21,833	12,011
2002	1,335,086	166,091	6,843	2,275	4,616	75	1,514,986	21,659	12,069
2003	1,353,310	168,785	6,912	2,303	4,703	75	1,536,088	21,102	12,154
2004	1,370,990	171,393	6,979	2,331	4,790	75	1,556,557	20,469	12,129
2005	1,387,359	173,822	7,045	2,359	4,879	75	1,575,538	18,981	12,167
2006	1,400,718	175,831	7,108	2,388	4,960	75	1,591,080	15,542	12,166
2007	1,412,418	177,628	7,168	2,414	5,025	75	1,604,726	13,646	12,178
2008	1,424,638	179,438	7,229	2,440	5,089	75	1,618,909	14,183	12,238
2009	1,437,110	181,309	7,288	2,467	5,153	75	1,633,402	14,493	12,253
2010	1,449,537	183,180	7,347	2,495	5,217	75	1,647,851	14,450	12,272
2011	1,460,979	184,920	7,402	2,524	5,267	75	1,661,167	13,316	12,307
2012	1,471,160	186,473	7,455	2,552	5,292	75	1,673,008	11,841	12,333
2013	1,480,577	187,922	7,509	2,578	5,314	75	1,683,975	10,968	12,346
2014	1,490,078	189,381	7,562	2,605	5,335	75	1,695,036	11,061	12,399
2015	1,499,814	190,876	7,614	2,632	5,356	75	1,706,366	11,330	12,439
2016	1,508,608	192,236	7,662	2,659	5,363	75	1,716,603	10,237	12,481
2017	1,516,392	193,432	7,709	2,682	5,342	75	1,725,632	9,029	12,487
2018	1,523,570	194,545	7,756	2,704	5,318	75	1,733,968	8,336	12,529
2019	1,530,135	195,576	7,802	2,726	5,294	75	1,741,608	7,640	12,560
2020	1,536,231	196,547	7,849	2,749	5,270	75	1,748,721	7,113	12,598
2021	1,541,425	197,366	7,892	2,770	5,239	75	1,754,783	6,062	12,641
2022	1,546,019	198,123	7,934	2,790	5,179	75	1,760,119	5,337	12,691
GROWTH RATE									
1998-2003	1.5%	1.8%	1.1%	1.1%	1.9%	0.0%	1.5%		0.5%
1998-2008	1.3%	1.0%	0.8%	1.1%	1.8%	0.0%	1.3%		0.3%
1998-2022	0.9%	1.0%	0.8%	1.0%	0.8%	0.0%	0.9%		0.3%

NOTE: 1998 FIGURES REPRESENT TWELVE MONTHS FORECAST

(DRI Forecast February 1998)